MYRMECIA

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THE COVER

The cover illustration for this year's *Myrmecia* features an illustration by Jenni Thurmer of the South Australian Museum of Katie's springtail, *Katianna australis* Womersley, a member of the globular springtail family Sminthuridae. This species, described from Tasmanian pastures in 1932, is common through southern Australia. Species of *Katianna* normally inhabit native grasses but a small number, including *K. australis* have been able to colonise exotic pastures.

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MYRMECIA

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Advertising Rates for Myrmecia

	Single Issue	4 Issues (One Year)
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In addition, loose inserts and pamphlets supplied by the advertiser will be included in a mailout for $50 per item. The items should be of a size which will not project beyond the pages of *Myrmecia*.

Copy Deadline for Next Issue

Material for publication in the November 1992 issue of Myrmecia should be in the hands of the Editor at the address below by Friday 23 October 1992. Submission on IBM-compatible floppy disk in a major word processing format is preferred. Details are available from the Editor.

Murray FLETCHER
News Bulletin Editor
Biological and Chemical Research Institute
PMB 10, RYDALMERE, NSW 2116

NOTICE

Statements made in *Myrmecia* do not necessarily represent the views of the Australian Entomological Society. Items printed herein should not be reproduced without permission of the author of the material.

LETTER TO THE EDITOR

June 16, 1992

Dear Editor,

Judging from the comments in the May issue of "Myrmecia" on the matter of the Conservation Committee it seems that there might be some value in reiterating some principles. I might point out that I have not been involved in any way in any earlier discussion of the matter and some of my comments may, therefore, be irrelevant because of my ignorance.

First your own comment that "A biological society as large and representative as ours has a responsibility to contribute to public scientific comment on any issue affecting entomology" cannot be gainsaid. The important word is "responsibility". It is, indeed, our business to become involved in important matters of which we have special knowledge and to which we can add meaningful comment to the community at large.

Secondly, Committees, such as the Conservation Committee, are set up to carry out duties in special areas or investigate particular topics which require specialist knowledge on behalf of the members, relieving the Executive of the impossible burden of doing all the work in all areas. It is the duty of such a Committee to recommend to the Executive what action be taken or what statement be made on behalf of the Society. It is the Executive's responsibility to make the Society's "public scientific comment", the Executive being the members' elected "voice". If a Committee makes submissions on behalf of the Society other than through the Executive the result will be a Society with two voices which may not always be saying quite the same thing. This being the usual arrangement, it is not unreasonable for the Executive to expect to be kept fully informed of the opinions of the Committee. In the normal course of events an Executive would accept recommendations based on the findings of its Committees and make appropriate statements or act accordingly. If it fails to do so in a disproportionate number of cases, then it would, perhaps, be time to look into the constitution of its Committees or to re-evaluate its policies. When a recommendation is made to the Executive it is a help if the Convenor indicates to what extent the members of the Committee have been involved in the discussions and the decision-making. This enables the Executive to have some idea of how the matter has been handled. Members are sometimes away or cannot give full attention to a problem and the Executive should be given information which would indicate the breadth of the basis on which the recommendations are based.

Thirdly, the course of procedure must be clearly understood if confusion is to be avoided. Topics for attention of a Committee can come from an individual member, the Committee itself, the Executive or even from some body not connected with the Society, such as another society with kindred interests. Whatever the source of the initial approach, which should be channelled through the

Executive, any suggestion that topics for a Committee's consideration be limited on any grounds other than those of importance or appropriateness is not acceptable. The Committee itself should be the final authority here and, if a topic is not considered appropriate for discussion by the Committee (which should, after all, know its own terms of reference), such should be its recommendation to the Executive.

Fourthly, there is no reason why, in those infrequent cases of exceptional circumstances, the Committee should not be given permission to go ahead with action, with the proviso that later "ratification" be given by the Executive. This should not often have to be the case. With modern means of communication it is seldom that the opinions of committee members cannot be obtained in a reasonable time so that their opinions can contribute to the recommendations.

Fifthly, the constitution and means of election of committees should be kept as simple as possible, the important point being to ensure that the most appropriately qualified and interested people are involved in the discussions. As the matters with which a permanent Committee is usually faced are somewhat specialised I would favour the establishment of a small core Committee to which people with special knowledge can be co-opted. A committee deals with a series of separate matters which are usually divorced from one another and there is no difficulty in practice in having a different Convenor from within the core Committee for each "project". Flexibility in such matters not only eases administrative procedure but also helps to spread the workload amongst the busy committee members.

Finally, it has been my experience that a committee works best when the object of the exercise and its achievement remain paramount.

C.N. Smithers

STOP PRESS

Malchus ARURA, Principal Entomologist with the Forest Research Institute at Lae in Papua New Guinea, passed away on 14 July 1992 while on duty on Manus Island. Malchus was formerly Myrmecia's Overseas Correspondent in Papua New Guinea. A full obituary is being organised for the next issue of *Myrmecia*.

EXECUTIVE REPORT

Meetings

The Executive met on 5 June and 3 July 1992

New Members

We welcome the following new members:

Mr A.R. AYASS, 5/420 Mowbray Rd, Lane Cove NSW 2066. Abdel Rahman is an MSc student at the University of Sydney. His interests include toxicology, allelochemicals, phytochemicals and pests of stored products.

Dr G.M. CLARKE, PhD, CSIRO Entomology, Canberra, ACT 2601. Geoff is Collection Manager of the ANIC and has interests in genetics and the use of insects in environmental monitoring.

Mr Y. KITT, DipBiol, 322 Military Road, Grange, SA 5022. Yorg is a PhD student with the Dept of Crop Protection, Waite Institute, and has interests in the ecology of parasitic wasps.

Dr P.J. MARTIN, PhD, Pitman-Moore Aust Ltd, Private Bag, Bringelly, NSW 2171. Paul is a Senior Scientist (Parasitology), with interests in resistance in insects and worm parasites as well as the development of chemical and biological products to control internal parasites of sheep and cattle.

Mrs G. MAYO, 5 Peewit Ave, Glenalta, SA 5052. Gwenda is an undergraduate with the Dept of Crop Protection, Waite Institute, and has a general interest in the biology and life history of insects.

Mr D.M. POLLOCK, BSc, "Birling", Private Bag, Bringelly, NSW 2171. Douglas is a Senior Development Officer with Pitman-Moore Australia Ltd.

Professor O. SCHMIDT, Dept of Crop Protection, Waite Campus, University of Adelaide, PO Glen Osmond, SA 5064. Professor Schmidt is the new Professor of Crop Protection. His main field of expertise is in the molecular and developmental genetics of insects.

Mr P. WALKER, PO Box 864, Sellicks Beach SA 5174. Peter is an amateur entomologist with interests in the Orders Coleoptera, Hemiptera, Hymenoptera and Lepidoptera.

Elected 3 July 1992

Mr R.W. ABBOTT, M/S 461 Tarome, Kalbar QLD 4309. Richard is a 4th year degree student at Gatton College and has a research project examining the effects of insecticide sprays on bee activity, fruit set and yield of cucumbers.

Mr G.J. BOWMAN, BSc, "Trawalla", Biniguy NSW 2394. Glen has been involved in a biological control project against *Melaleuca*, at James Cook University.

Miss M. CASTILLO PANDO, 34/127 Burns Bay Rd, Lane Cove NSW 2066. Maria is a student in the Faculty of Agriculture, University of Sydney and has interests in applied entomology, the Diptera and parasitism.

Mr M. CROUCH, Manchee St, Biniguy NSW 2394. Michael has an interest in applied entomology.

Mrs S. KIANMATEE, BScAgr, Dept of Agronomy

and Soil Science, University of New England, Armidale NSW 2351. Supawan is enrolled as a postgraduate student and has interests in allelochemicals and biological control.

Mrs M. MASSOUD, MScAgr, 2 Cassowary St, East Doncaster, VIC 3109. Maryam is a PhD student with the Faculty of Horticulture, University of Western Sydney

Ms L.E. MUIR, BSc(Hons), Queensland Institute of Medical Research, PO Royal Brisbane Hospital, Brisbane QLD 4029. Lynda is a PhD student at the University of Queensland and has an interest in medical entomology, including the behaviour, ecology and sensory systems of mosquitoes.

Ms S.A. SCOUGALL, BApplSc(Hons), 10 Cardiff St, East Victoria Park WA 6100. Anne is a PhD student at the Curtin University of Technology and has a project looking at the restoration of ecological processes in the revegetated areas of the WA wheat belt.

Dr J. SEYMOUR, PhD, c/- CSIRO Entomology, PMB 3, Indooroopilly, QLD 4008. Jamie is an Experimental Entomologist with an interest in invertebrate ecology and biological control.

Ms C.C. SYMINGTON, BScAgr(Hons), 157 Mountain View Rd, North Balwyn VIC 3104. Catherine is a Technical Assistant at the Institute of Plant Sciences, Burnley, with interests in biological control and host plant responses/defense mechanisms to insect pests.

Ms M. TIO, BSc, 91 Somerville Rd, Hornsby Heights NSW 2077. Margaret is a Research Assistant and part-time PhD student, with an interest in the biology and taxonomy of the arachnids.

Ms B. VORPAGEL, BApplSc, Incitec Ltd, PO Box 140, Morningside QLD 4170. Bronwyn is an agronomist and is involved in the R&D of crop-protection products.

Resignations from Membership.

Mr C.P. CANTY
Mr C.B. HALE

Change of Address or Title

Mr F.B. ANTRAM, PO Box 340 Belconnen, ACT 2616

Bayer Australia Ltd, Attn Dr P. Krohn, 875 Pacific Hwy, Pymble NSW 2073

Dr P.J. DE BARRO, c/- Dr S. Wratten, School of Biological Sciences, Biomedical Sciences Building, Bassett Crescent East, Southampton, ENGLAND, SO9 3TU

Mr B.F. INGRAM, c/- DPI, Box 23, Kingaroy, QLD 4610

Dr R. LARDNER, Dept of Biological Sciences, Simon Fraser University, Burnaby, British Columbia V5A 1S6.

Miss J. LLOYD, Dept of Crop Protection, Waite Campus, University of Adelaide, PO Glen Osmond, SA 5064

Dr D.B. McCORQUODALE, alter Mt Breton to Cape Breton

Dr P.B. McQUILLAN, Dept of Primary Industry, St Johns Ave, New Town, TAS 7008

Dr D.J. MERRITT, Dept of Zoology, University of New England, Armidale NSW 2351

Mr A.J. MICK, change of status from Full to Student Member

Mr I.J. WOOD, 2 Claremont Crescent, Windsor, NSW 2756

R.A. and B.J. YULE, PO Box 460, Gympie QLD 4570

From the Minutes.

Dr A.J. (Tony) WAPSHERE, CSIRO Entomology, Canberra, has been selected to fill the vacancy of Journal Technical Editor.

An Excel computer program has been purchased for use in the storage and retrieval of Budget and Membership data. The Budget data suggest the need to review income and expenditure, the latter being mainly the cost of publications.

Proposed amendments to the Society's Constitution and alterations to its By-Laws have been forwarded to the Public Officer (Dr Ian NAUMANN) for further action.

The new Convenor of the Conservation Committee (Mr Lionel HILL) has circulated proposals for future activities of that committee.

A draft report is being prepared on guidelines for the Society's Biological Illustration Competition.

Dr R. FIELD presented an interim report on his research project which has been funded by the Society. Ross intends to present a full report of his study for publication in the AES Journal.

CONSERVATION COMMITTEE REPORT

The committee has eight new members while some previous members retired after several year's service. Many of the 'new' members have previously assisted the committee. We all wish to thank Penny Greenslade for her convenorship and Jenny Anderson, Rhondda Jones and Barbara York Main for their contributions to the previous committee.

Current members are listed on the cover. I am grateful to them all for offering their time whether in large or small amounts. I would be happy to hear from others who wish to participate in the committee's work either regularly or irregularly.

During the transition from old to new committee a submission was made to the Biological Diversity Advisory Committee (BDAC) on their draft National Strategy. I am pleased to report that the Society's comments could be more supportive than for a previous strategy from the Endangered Species Advisory Committee (draft Australian National Strategy for the Conservation of Species and Habitats Threatened with Extinction). The biodiversity strategy offers a major opportunity for invertebrates to be formally and substantially recognised in conservation whereas the latter strategy concentrated on known threatened species and their habitats which effectively excludes invertebrates because they are poorly known.

The submission also said that it was essential that entomologists be consulted on a professional basis in the implementation of the many generalised recommendations. Otherwise known wildlife will once again consume most of any new funding arrangements. Professional consultation of entomologists is important because members of the Society cannot be expected to provide detailed and sustained input on a voluntary basis to a large and hopefully expanding government program. A free copy of the draft Biodiversity Strategy can be obtained from Stewart Reed of BDAC (06 2741938). I can supply a copy of our submission.

A free summary report on the Resource Assessment Commission's Forests and Timber Industry Inquiry can be obtained by phoning 008 020627 or 06 2715444. The previous conservation committee made submissions to this Inquiry. Genevieve Carruthers and Penny Greenslade with help from Eric Matthews, Rhondda Jones, Roger Kitching, Peter Cranston and Don Sands recently contributed to an RAC Inquiry into the Coastal Zone.

Alan Yen has submitted his draft national overview for non-marine invertebrate conservation to the Endangered Species Unit (ESU) of the Australian National Parks and Wildlife Service (ANPWS). Alan Anderson, Eric Matthews, Robin Coy, Robin Gunning, Paul Horne, Peter Dostine, Alice Wells and Peter McQuillan have provided comments for our submission within the short time available. This overview has long term and national importance for the conservation of invertebrates. Consolidated comments will be reported in the next *Myrmecia*.

Background on ANPWS-ESU and its Endangered Species program (ESP) is given in their newsletter "On the Brink" (Feb. 1992) available free from Russell James (06 2500287). It includes a list of 116 research projects funded by ESU including 8 invertebrate projects as follows:

1. Recovery plan for the threatened Mallee butterfly community, $11000
2. Conservation research statement for the threatened Mt Piper butterfly community, $11000
3. Survey of invertebrates of the Victorian basalt plains grasslands, $60000
4. Recovery plan for Freshwater Crayfish (Tasmania), $2000
5. Recovery plan for the Ptunnara Brown butterfly, $14000
6. Survey of the Gog Range freshwater habitat for *Astocopsis gouldi*, $9750
7. Australian butterflies, $52287
8. Conservation of aquatic invertebrates, $9123

Alan Yen's national overview is also an ESP project. Roughly 4% ($0.16M) of the 1991/92 research budget went to invertebrate projects compared with 43% ($1.8M) for non-pest vertebrate projects. The approved funding for 1992/93 is 20% less. This will be spent on writing recovery plans, implementing them, surveys, conservation overviews, national action plans and addressing specific threats (foxes, cats and *Phytophthora*). In the first year of the ESP there was a component of competitive funding available which was advertised nationally. Since then, funding has been directed to priority areas and most projects have been funded via State conservation agencies. For AES members there is a possibility of ESP funding through a cooperative arrangement with State conservation agencies. The closing date for 1992/93 was July but members should begin to investigate possibilities for the next year. As time passes an increasing proportion of ESP funds is committed to implementing previously funded recovery plans.

The ESU services the Endangered Species Advisory Committee (ESAC) whose final Australian National Strategy for the Conservation of Species and Habitats threatened with Extinction will be available soon. Phone Russell James at ESU, 06 2500287.

The ESP also has a non-government arm, the National Threatened Species Network funded with $295,000 in 1991/92. Their national newsletter is "The Web". The national coordinator, Margaret Moore (03 8990802), can tell you how to obtain a copy. It has published 2 articles on invertebrate conservation by Penny Greenslade and Barbara York Main. I am seeking more short articles from members for "The Web". It has three issues annually. The Network also has State newsletters which can provide a forum for invertebrate education.

On a similar note, I urge members to continue to contribute to the ABC Radio program Green and Practical. It has a weekly 7-minute segment on timely natural history events. Lyn Malcolm (02 3331397) or Janet Parker (02 3331416) of ABC can provide more details. They like to do on-site interviews and have a large calendar to fill. They would like to plan ahead.

My preference for a project to follow the submission on Alan Yen's report is the documentation of staff expertise in government conservation and land management agencies. The gross shortage of such staff with invertebrate expertise must hamper the effectiveness of all submissions we or paid invertebrate consultants make. For example, Alan Yen's report will enter an agency framework almost devoid of invertebrate expertise. This absence also adds to our workload because we frequently find ourselves doing basic data collection or information reviews that are usually funded by agencies for vertebrates and plants. The presence of entomologists within the State conservation agencies would improve your chances of obtaining more than 4% of the $4M ESP budget.

The survey could also provide a directory of staff professionally involved in invertebrate matters as well as current invertebrate project lists and unpublished reports on invertebrate conservation.

The Queensland Museum and Queensland Threatened Species Network are sponsoring a conference in Brisbane (July 1993) on the

biodiversity and conservation of invertebrates. Information and contact person are provided on Page 25.

Lionel HILL
Convenor

A.M. Lea's Coleoptera Types at the Victorian Agricultural Insect Collection (VAIC)

The VAIC is situated at the Department of Food & Agriculture's Institute of Plant Sciences, Burnley. It contains some historic specimens, particularly those of H.W. Davey and a small number of Charles French (Sr. and Jr.), all of whom were working with the Department of Agriculture for considerable periods during 1890-1927. It appears that Davey had his Coleoptera identified by and exchanged specimens with Lea. During the course of the recent rearrangement of the VAIC Coleoptera, we have come across some 75 specimens (in families Scarabaeidae, Chrysomelidae, Pselaphidae, Anobiidae, Byrrhidae, etc.) which have been identified and labelled by Lea as "co-types". The validity of some of these specimens has been verified against the published original descriptions. A catalogue of these specimens will be prepared in the near future. The purpose of this note is to bring to the attention of workers the existence of these types in our collection. For further details contact Dr M. Malipatil, Institute of Plant Sciences, Swan Street, Burnley, Victoria 3121.

REGIONAL NEWS

NEW SOUTH WALES - Metropolitan

Forestry Commission of NSW

Bob Eldridge attended the International Congress in Beijing where he was primarily involved in the three day Workshop on Termites, for which many thanks go to Michael Lenz. The Congress and the Workshop were outstanding experiences. Bob was able to present two papers; one on part of his studies on the Australian *Glyptotermes* and the second on the use of X-ray techniques to survey termite damage to large wooden structures, such as road bridges.

Christine Stone has recently concluded two of her projects on young eucalypts. The first, a trial near Urunga investigating the effects of psyllid attack on a newly established *E. grandis* plantation. The second, a field trial to test the efficacy of three systemic insecticides, in a sustained release granular formulation, in protecting young eucalypts planted as rural windbreaks near Bathurst. The next couple of months will be spent on the analysis of data collected from the Commission's River Red Gum trial near Deniliquin. Chris is trying to tidy as much of her work as possible before taking six months leave, commencing in December, "to do a spot of mothering".

Chris Ann Urquhart's three year contract expired at the end of June but she has been given six months reprieve. Her time will be divided between the collection and assisting Christine Stone with her red gum and psyllid projects for 50% of her time and assisting Alan York with his invertebrate analysis of the effects of sewerage sludge on forest environments. Alan, in the meantime has disappeared to the UK for several weeks.

Darren Waterson returned safely from the Army Malaria Research Unit's "Operation Anopheles" in Papua New Guinea. Plenty of mosquitoes, but few termites was the report given to Bob Eldridge. A couple of mosquito traps were "non-recoverable" (one now located in the middle of the Black River in Western Province) and these should prove to be interesting artefacts for future visiting anthropologists.

CERIT, University of New South Wales.

CERIT experienced a rash of visitors in the first months of this quarter and since then it has been very quiet with a number of staff taking holidays. CERIT is in a newly established Zone for Safety and Patrick O'Rourke (CERIT) is the chairman of the OHS Committee of the zone. CERIT was involved in the inaugural Safety Inspection and passed with flying colours except for a few minor matters which were easily rectified. A fire fighting and evacuation demonstration is to be staged for the benefit of all staff.

Julie-ann Short is now full time as she is standing in for Stephen Fellenberg while he is in hospital recuperating from a wrist operation. Jenny Anderson flew with eight others to the UNSW Fowlers Gap Arid Zone Research Station for their Open Day. She spoke on her 10 years of sheep blowfly research, along with other researchers who gave papers on a variety of arid zone topics. Despite dreadful drought in the area, over one hundred people attended and there was much optimism expressed for the sustainability of agriculture in the area.

Pitman Moore has been of great assistance to CERIT in its efforts to establish a buffalo fly colony in its laboratories. In particular, Doug Pollack has been collecting fresh bovine blood for the flies.

Visitors to CERIT included : Dr Andrew Farnham, Senior Entomologist, Rothamstead Experimental Station UK; David Finch, Chemist, SC Johnson & Co.; Dr Tom Spirling and Dr Chris Strauss, both from CSIRO Chemicals and Polymers, Melbourne; Peter Loneragan, Program Support Manager, Meat Research Corporation; Mike Gibeon, Alan Heslop and Sue Rambaud, Samuel Taylor of Reckitt and Coleman, NZ; Dr James Chin, NSW Agriculture, Elizabeth Macarthur Institute; Dr David Cottle, Dept. Wool and Animal Science, UNSW; Dr Richard Souness, Food Technology, UNSW; Prof. John Madden, University

of Tasmania; and Dr Robyn Gunning, NSW Agriculture, Tamworth.

Department of Medical Entomology, University of Sydney at Westmead Hospital

Richard Russell and Stephen Doggett attended the International Conference on Lyme Borreliosis in the USA in May and presenting a poster entitled 'Does Lyme Disease occur in Australia?'. The conference was held in Arlington, Virginia, and they managed to visit a number of the tourist sites around Washington D.C. Following the conference they spent a few days with Dr Durland Fish in Westchester County, New York state, an important 'hot spot' for Lyme disease.

Richard has given invited talks at the Paediatrics Department of the Prince of Wales Hospital in Sydney on problems in public health entomology, especially headlice, scabies, and arboviruses. In June Richard went to China to attend the International Congress of Entomology, and to join an international delegation of vector ecologists touring scientific institutions in various parts of China for professional exchanges. The delegation visited areas where mosquito-borne diseases such as malaria, filariasis, dengue and Japanese encephalitis are a public health problem, and heard that the tick-borne Lyme disease, the flea-borne murine typhus and plague, and the mite- borne scrub typhus are problems in certain regions.

Back in Australia, Stephen gave a talk on Lyme Disease to members of the NSW Entomological Society, at Rydalmere. Stephen and Peter Wells attended the Australian Society for Microbiology (ASM) Conference at Darling Harbour, and Stephen (and Richard *et al.*) presented a poster on Lyme Disease.

Peter and John Clancy have finished processing the mosquitoes collected during the 1991-1992 season, but have still to identify all the virus isolates. John is proceeding with entering and analysing the mosquito collection data, while Peter continues on with the virus isolations and his vector competence investigations.

Merilyn Geary is celebrating the publication of the fourth paper describing eggs of Australian *Aedes* mosquitoes with scanning electron microscopy. Merilyn's considerable efforts in acquiring eggs from a range of species for this study by Dr John Linley of the Florida Medical Entomology Laboratory are being rewarded.

Visitors included : Dr Phil Weinstein (South Australian Health Commission) for discussions on arboviruses and headlice; Dr Ian Marshall (Department of Biochemistry, ANU, Canberra) and Margaret Weimers (State Health Laboratories, Brisbane) to inspect the arbovirus programme; Ms Kay Marshall (Queensland Institute of Medical Research) to inspect insectary facilities and discuss mosquito colonisation with Merilyn.

Department of Plant Pathology and Agricultural Entomology The University of Sydney

Harley & Barbara Rose, Jim Woodward and James Walker have been on an extensive collecting trip to Central Queensland. They were collecting species of the giant burrowing roaches *Macropanesthia* and other material that came to hand. The collecting was marvellous and well worth the effort.

Fred McDonald has been absent overseas visiting the Natural History Museum, London for 3 months and one month at Louisiana State University, Department of Entomology. He has also taken 4 months of long service leave and paid visits to Japan and Central Australia. He was saddened at the Natural History Museum to see the great cutbacks in staffing and money in the areas of traditional insect taxonomy.

The following students have commenced Master of Agriculture degrees this year, and are working in Dr Rose's area of expertise. Maria Catillopando, Abed Rahmanayas, Andrew Shelley and James Walker. Graham Barden has commenced work on a Ph.D. with Dr Rose as supervisor.

Ken Fairey, with support from the University, attended the 19th International Congress of Entomology in Beijing. Ken gave a paper on his Anthelid work which was well received.

Margaret Tio attended the 12th International Congress of Arachnology in Brisbane. She will be continuing North to spend some time collecting on Lizard Island.

Macquarie University, School of Biological Sciences.

The First International Symposium on the Biology of the Onychophora will occur from September 1 to September 4 at the University of Leicester, UK. A separate session has been allocated to the Australian Onychophora with papers presented by Dave Briscoe, Noel Tait and Mandy Reid.

Peter Serov has just begun his MSc candidature under the supervision of Noel Tait and Bruce Halliday (CSIRO Div. of Ent.). Peter will be working on the taxonomy of mites from subantarctic islands.

Hermann Niemeyer (University of Chile) visited the aphid group in May. Besides giving a School seminar, he had discussions with Dinah Hales, Eren Turak, Lilian Blanco, Brian Atwell and Andy Beattie about aphids, plants and bioresources. Dinah (still without a post doc) fitted half the 8th Australian Applied Entomological Research Conference (couldn't miss an Aphid Workshop) and the Beijing ICE into 1st semester. In Beijing she enjoyed talking to Elysse Craddock (Sydney University honors and PhD contemporary from the distant past). Elysse, who did her postgraduate work on chromosomal evolution in Australian stick insects, is now working on Hawaiian Drosophila at the State University of New York (Purchase), and would be delighted to hear from any Australian

acquaintances who may be passing through New York.

Frank Burrows (with occasional input from Hales) has taken up the aquatic millipede problem again, and is doing fortnightly sampling to study the reproductive and life cycles. And yes! this does mean that the millipedes survived the building of the University's lake, despite high mortality caused by siltation during the 1991 construction period.

The Beattie lab has been quiet lately with many on overseas appointments. Andrew returned from the USA for another sitting of BDAC (Biodiversity Advisory Committee) in Canberra before flying on to the UK. Ian Oliver's poster 'Rapid Biodiversity Assessment (RBA)' was well received at the systematics and conservation evaluation conference held at the Natural History Museum in London. Bob May who stressed the need for a 'quick and dirty' approach to cataloguing biodiversity has reviewed Ian's paper submitted to Conservation Biology. It has been accepted with revisions - stay tuned. Ian is now using RBA to examine the correlation, or lack of, between the species richness of conventional tree/vertebrate 'indicator species' with invertebrate biodiversity.

Continuing work on the Australian bull-ants *Myrmecia* spp. and their anti-microbial secretion has proved interesting. Jim Mackintosh and Duncan Veal have shown that male *Myrmecia* (without metapleural glands) separated from workers (with glands) have more microorganisms on their integument than males left with workers. Jim presented this work at the Australian Society of Microbiologists (ASM) conference held at Darling Harbour in July. Craig Angus and Malcolm Jones have examined metapleural gland size and cell number between *Myrmecia* spp. and castes within species. Their data show that gland size is positively correlated with the surface area of the ant. Yet more pieces of the *Myrmecia* puzzle fall into place.

Kay Watson is head-down gaster-up carrying out feeding trials on *Rhytidoponera metallica* to determine the contribution of elaiosomes to colony fitness.

Fiona Lewis is working on the biogeography of Oniscoidea (slates) from the S.W. Pacific, including New Zealand, New Caledonia, Lord Howe Island, Norfolk Island and Eastern Australia. She has recently returned from collecting trips to Lord Howe and Norfolk Islands. Lord Howe Island produced many unusual new species but 'civilisation' on Norfolk Island seems to have left only a small number of isopod species.

Macleay Museum, University of Sydney

The Invertebrate Unit has been closed down for more than a month because of renovations. Brick walls replace wooden ones, new fire doors have been hung and a vast carbon dioxide fire extinguishing system has been installed. The smoke detection system is so sensitive that it will activate the extinguishers if someone walks into the laboratory with a lighted cigarette! So smokers be warned, if visiting the Unit.

Recent donations include 15,532 Australian, New Zealand and United States insects from Dr Tom Gush. About 90 percent are pointed and almost all are Coleoptera and Formicidae. Joe Bugeja donated 1345 Australian insects also. Both donations benefit from the Taxation Incentives for the Arts scheme.

There is no further word about the future of the Macleay Museum. The Museum will survive but the question remains as to which collections might be transfered elsewhere. Dr Peter Stanbury, who has been associated with the Macleay Museum for 25 years has resigned from the University. Woody Horning will assume the additional duties of acting director for an indefinite period. Hence requests for specimens or information will take longer than usual, so please be patient.

Biological & Chemical Research Institute, NSW Agriculture, Rydalmere

Victor Rajakulendran has finally been appointed to the position of Entomologist (Vegetables) on a permanent basis, having acted in the position for over twelve months.

Alan Clift hosted a visit by Dr F. Miller, Sylvan Foods, Pennsylvania, USA on 18 June. Dr Miller was investigating current mushroom research in Australia. Alan and Mary Ann Terras visited Robin Bedding in July chasing biological control agents for mushroom dipterous pests.

Graham Brown and Peter Gillespie spent a week on Lord Howe Island continuing research into control of the Lord Howe Island Palm Moth. Danuta Knihinicki has also managed to escape from the Institute for a week travelling up north to visit John Macdonald at Wollongbar and John Donaldson at QDPI Indooroopilly before attending a workshop on mites in horticulture at Port Macquarie in early June.

Gary Levot attended a workshop at CSIRO Canberra on the identification of screw-worm flies and larvae. At least two people from each State/Territory has now been trained in the identification of both Old and New World screw-worm flies. Gary has also been busy with sheep body lice and forensic identifications. An interview with the Prime Television Network on the use of insects in forensic science was in response to an item in a recent current affairs program. Apparently a forensic report prepared in 1983 was not tendered as evidence at a murder trial because the accused man pleaded guilty. The report appears to contradict the possibility that this man could have been guilty. Stay tuned for further developments!

Andrew Beattie spent a week in Guangzhou, China, developing an ACIAR project on integrated pest management of citrus pests.

Clarrie Chadwick made a rare return to his old Branch to research files for a history of agricultural entomology in New South Wales which he is writing. Clarrie retired in 1974 as Curator of the Entomology Collections.

University of Western Sydney, (Hawkesbury)

Robert Spooner-Hart and Anja Hunold (Hawkesbury IPM Service) attended the final annual meeting of the HRDC project "Implementation of Integrated Mite Control in Apples" at Orange in May. They were well looked after by Col Bower and Graham Thwaite.

Anja Hunold participated in a workshop on mite problems in the North Coast nursery industry at Port Macquarie in June, with Steve Goodwin and John Macdonald.

Steve Johnson, Apiary Manager, undertook his first visit to Central Java, with artificially inseminated queen bees in his pocket (would have given the pickpockets a shock! - *ed.*), which were introduced into hives as part of an ACIAR-sponsored project.

John CLANCY
Regional Councillor

Australian Museum

Shane McEvey has recently completed a report for NPWS on the results of survey work in rainforests of northeast NSW; a large number of drosophilid flies were collected using a number of different techniques. Distributional data has been incorporated into the NPWS's geographic information system: E-RMS.

Dan Bickel has sorted through dolichopodid flies collected by Shane, Margaret Schneider (Univ Qld) and Greg Daniels (Univ Qld) on the Royal Geographic Society of Queensland expedition to Heathlands, Cape York Peninsula. To date Dan has identified about 15 species and described six of them as new.

Michael Ball's taxonomic studies of Australian mayflies has brought him into the museum regularly over the last couple of months. Alan Dyce visited briefly as did Robert Lachlan from Papua New Guinea.

Drs Maureen Coetzee and Richard Hunt, Department of Entomology, South African Institute of Medical Research visited Shane in Sydney, Rod Mahon in Canberra and Hugh Paterson in Brisbane on their way back to Johannesburg from the Beijing Congress. Richard and Maureen are involved with various research programs into insect vectors of diseases, they specialise in the cytology and taxonomy of Anopheles species.

Three large foreign coleoptera collections have been donated to the department by Roger de Keyzer, Allen Sundholm, and George Hangay.

Shane McEVEY
Regional Councillor

NEW SOUTH WALES - Country

CSIRO Pastoral Research Lab., Armidale

Kathleen King attended a workshop, held at Columbus, Ohio, during 6-10 April, on the "Eco-toxicity of Avermectin" Delegates at the meeting were an interesting mixture of pasture ecologists, veterinary scientists entomologists and chemists. Avermectins are broad-spectrum antiparasitic drugs which are excreted mainly in ruminant faeces. Residues of these drugs have been shown to have deleterious effects on the conspicuous dung dwellers and feeders, such as dung beetles and fly larvae, in the early stages of dung decay. Very little is known about the smaller, less-visible decomposer organisms such as microarthropods and nematodes. In her papers Kathleen examined the impact of such a drug on nutrient cycling activity in pastures grazed by sheep. She also considered the value of a community approach to assessing the environmental impact of agrochemicals.

University of New England, Zoology

Hainan Gu has left N.S.W., and has moved north to the Centre for Biological Population Management at the Queensland University of Technology. He is now working on the quantitative genetics and selective breeding of the Redclaw (*Cherax quadricarinatus*).

Agricultural Research Station, Myall Vale

Nigel Armes, entomologist with the UK-based Natural Resources Institute, and stationed at ICRISAT in India, visited Neil Forrester in mid February to experience at first hand the logistics of running an intensive resistance monitoring program. Nigel also had discussions with Gary Fitt during his week's stay in Narrabri.

Peter Lonergan (temporary Technical Officer with Neil Forrester at Narrabri) has left to take up a 10 month position with the international agrochemical industry Insecticide Resistance Action Committee (IRAC) stationed at ICRISAT in India. Peter will be supervising a pilot Insecticide Resistance Management and resistance monitoring program in the Gunur area of Andhra Pradesh state. He will be working in close co-operation with Nigel Armes, Indian government researchers and the Indian agrochemical industry. If this project proves successful it is quite possible that the World Bank would be willing to fund a more extensive and longer term project for a number of centres in India.

Gary Fitt, Lewis Wilson, Martin Dillon, Gina Dillon and Cheryl Mares attended the 55th Applied Entomology Conference at Canberra in late April.

Entomology staff at Narrabri are now enjoying much needed additional space in a new insectary recently completed as part of a major expansion of facilities.

The CSIRO Cotton Research Unit hosted a visit during June of a delegation of Chinese cotton researchers from the Chinese Cotton Institute at Anyang, Henan Province. The Chinese are keen to collaborate in cotton research. Soon after (June 28-July 4) Gary Fitt attended the International Congress of Entomology in Beijing. He also visited the Institute of Plant Protection in that city and the Cotton Institute at Anyang, before travelling to India to spend a week at ICRISAT.

All staff from CSIRO Cotton Research Unit at Narrabri participated as explainers at the travelling exhibition on genetic engineering "Will Pigs Fly?", which toured the cotton areas (Dalby, Moree,

Narrabri and Dubbo) during June. The exhibition provided information on the techniques and potential applications of genetic engineering technology in agriculture and medicine and gave a balanced coverage of public viewpoints on the ethical and regulatory issues which are currently the subject of public debate.

North Coast Agric. Institute, Wollongbar

Neil Treverrow attended the International Congress of Entomology in Beijing, where he gave a collaborative paper with Robin Bedding reviewing entomopathogenic nematodes.

John Macdonald has recently received funding for a project to deal with insect pests in the North Coast nursery industry.

John Gillett, after a year spent getting his macadamia farm into order, has been rewarded with an excellent crop. In the process he has become acquainted with John Macdonald and Don Scambler, who is assisting the entomologists on a casual basis.

Visitors included Danuta Knihinicki from BCRI, Rydalmere, and, in early June, Chris Reid from CSIRO.

Agric. Research & Vet. Centre, Orange

Graham Thwaite and Col Bower joined many of their colleagues at the 5th AERC at Canberra in late april. While still in conference mode, they hosted a meeting of entomologists and pest managers held at Orange, May 26-27. This meeting saw the winding-up of a three year project funded by HRDC which fostered the establishment of consultants at Stanthorpe, Richmond and Orange, to assist apple and pear growers to manage mite control using predatory mites. Col Bower attended the XIX International Congress of Entomology.

Yanco Agricultural Institute

The end of the financial year is increasingly becoming associated with the exodus of temporary industry-funded technical staff. This unfortunate fact of life has seen the departure of Jenny Whitney and Karen O'Malley with the termination of projects on Spined Citrus Bug and grapevine mites. New projects on these subjects have just received funding approval, so hopefully we will be able to entice Jenny and Karen back to the fold. In the meantime Jenny is planning a sojourn in Africa to check out the gorillas, and may also indulge in another passion of hers: hot air ballooning.

Results from the first season of trials of synthetic pheromones and attractants for dried fruit beetles (*Carpophilus* spp.) are very promising. David James is evaluating their potential as management tools for these increasing pests of stone fruit in south-eastern Australia. He has just received funding from the Canned Fruits Industry Council of Australia and the HRDC for this project.

Richard Faulder spent two weeks in Perth examining mouse spiders at the Western Australian Museum and University of Western Australia, and consulting with Barbara York Main.

Congratulations to Mark and Fiona Stevens on the arrival of their first son, Jeremy, on 2 August.

Tweed Shire Council

Recent months have seen the winding down of one of the worst mosquito seasons for many years. Regular heavy rainfalls through summer-autumn broke a long North Coast drought, providing ideal breeding conditions in reflooded wetlands for the mosquito species *Culex sitiens, Aedes vigilax* and *Aedes funereus*. Ross River Virus was prevalent in the region late summer-autumn.

Clive Easton is presently building some king-sized light-CO_2 traps that he is hoping will be more effective for trapping large numbers of biting midges than present traps, which are designed principally for mosquito collections. Arbovirus studies are planned for next season's trapped biting midges.

Richard FAULDER
Regional Councillor

AUSTRALIAN CAPITAL TERRITORY

CSIRO Division of Entomology

Travel and conferences dominates the news this quarter. the applied entomology conference in Canberra was a real success, thanks to the efforts of Paul Wellings, Wendy Milne, Sharon Corey, David Dall, Colin Chandler, Brian Fletcher and Richard Milner, plus helpers too numerous to name. The work isn't finished yet, they are still hard at work on the proceedings.

Peter Smith attended the annual meeting of the Australasian Society for the Study of Animal Behaviour in April, when he gave the presidential address to end his term as president. With those obligations finished, he's going to try to attend the entomology meeting in Cairns next year.

Rod Mahon has visited Mexico and Costa Rica to learn everything possible about the mass-rearing methods used for screw worm fly in Central America, in anticipation of building the proposed facility in Malaysia. Michael Lenz and Sil Runko had a trip to Tuvalu in the South Pacific to study colonies of the coconut termite.

The past quarter has seen the Division as a hive of activity in preparation for the Congress in Beijing. Sandy Smith and Chris Hunt in illustration were extremely busy preparing visuals for the myriad of delegates on their way to China. Max Whitten presented a plenary address to the Congress, using. Ray Akhurst organised a symposium on entomopathogenic nematode/bacterium symbioses. Tony Watson, Michael Lenz and Leigh Miller talked termites, Robin Bedding and John Curran entomopathogenic nematodes. Barry Longstaff, Alistair Drake (now at the Department of Defence), Roger Farrow, Bill Ballard, Adam Smigielski, Keith Binnington and Dan Bedo swelled the ranks from Canberra.

Jonathan Banks, Bob Winks, Peter Annis and Jan van S. Graver attended the conferences on stored products and controlled atmospheres in Winnipeg, Canada in June. Jan has also had a couple of trips to Mildura to demonstrate sealed

stack fumigation of dried fruit. The extension to the Stored Grain Research Laboratory was opened officially in May. The guests from industry and government were treated to a tour of the laboratory and demonstrations of research in progress.

Barry Nagorka had a trip recently to the University of British Columbia in Vancouver and then Oxford University where he presented a paper at the conference on the mathematical theory of the dynamics of biological systems.

Bill Ballard has left us to take up his fellowship at Chicago State University. Best wishes.

A warm welcome to Pat Mackay and Bob Lamb from Winnipeg, Canada, who have arrived for a year to work on cereal aphids with Dick and Anne Hughes. Hermann Niemeyer has returned to Chile after his stint working on resistance mechanisms in aphids with Paul Wellings.

Phil Spradbery recently brought home his easiest European wasp nest ever. It had been built in a suitcase in a garage in Moss Vale; so all he had to do was snap the case shut and carry it away.

Members of the pheromone group have been rushing off overseas to recharge their batteries for the next field season. Next to go is Eric Rumbo who will be attending the workshop on mating disruption in orchards and vineyards to be held in S. Michele, Italy in early September. Funds have been obtained for the group to work on banana scab moth and for a study of aerial pheromone concentrations in treated orchards.

Australian Plague Locust Commission

Genevieve Carruthers reports that while "everyone is away", she's stuck to her microscope, literally, thanks to lots of glue and ants that need mounting. At the moment she's trying to identify the ants to species, with help from Steve Shattuck (A.N.I.C.). David Hunter is in Queensland looking at *Locusta migratoria*, and Paul Walker is in Longreach for the vegetation study part of the project on the impact of fenetrothion on non-targets.

Jane WRIGHT, for David DALL
Regional Councillor

ANU and ANIC

The ANU entomology group has been very active lately. Penny Gullan was away from Canberra for two months collecting in Western Australia (the Pilbara and Kimberley regions), the Northern Territory and central Australia. General collecting of scale insects was rather poor but many species and populations of gall-forming *Apiomorpha* and *Cystococcus* were found, including at least two new species of *Apiomorpha*. The *Apiomorpha* samples are being studied karyologically by Lyn Cook. Lyn has recently completed her Honours course with Penny, and received first-class honours for your efforts. Her thesis was on the biology and cytogenetics of *Apiomorpha*. Lyn hopes to pursue here interests in chromosome evolution and speciation in scale insects as part of a Ph.D. program.

John Trueman will be combining Ph.D. thesis writing with teaching for next few months. He is teaching part of an undergraduate course in invertebrate biology normally taught by Penny, who has taken time off to do some writing. Both are looking forward to a change in their usual routines, with John organising labs for students and Penny having a wonderful time away from it all.

There has been a large increase in the number of Honours students at ANU, with three undertaking entomology projects with Penny Gullan. Brett Melbourne will be studying insects in remnant grassland patches in the ACT, with special emphasis on ants. Brett's earlier experiences with ants while working in the ANIC should come in handy during his new project. Kendi Davies will be working on part of the beetle data from the Wog Wog habitat fragmentation project in consultation with John Lawrence and Chris Margules. And finally, Alistair Hunt will be examining communities of Acacia-feeding chrysomelid beetles, with the assistance of Chris Reid and Roger Farrow.

Congratulations to Nick Drayson, who has successfully completed his M.Sc. program on the taxonomy of the chironomid midge genus *Cricotopus*. Currently Nick is preparing the work for publication as well as writing another natural history book.

With winter firmly settled on Canberra, Chris Reid decided that the best chrysomelid collecting was in Queensland and the Top End. He spent several weeks on the Atherton Tablelands and in the Darwin region visiting coworkers and chasing beetles. He reports success on all fronts, although the Top End was a bit too dry for most beetles to be out and about.

Kathleen Strong has started work on her Ph.D. project on the systematics and host relationships of the parasitic mite genus *Psoroptes*. Katy is making good progress and would welcome any information about, or specimens of, ectoparasitic mites from any mammal species, especially livestock and rabbits.

The acarology laboratory at the ANIC has been active recently. The redlegged earth mite season is well under way, and Bruce Halliday has started accumulating specimens and equipment in preparation for the appointment of a Wool Corporation-funded Postdoctoral fellow. Bruce will work with this person on the systematics and population genetics of the Penthaleidae. The lab was recently visited by Glenn Hunt of the Australian Museum, who was making use of the extensive library to collect literature for his ABRS-funded project on oribatid mites.

Travelling has been the order of the day for many ANIC staff. Peter Cranston and Steve Shattuck accompanied Penny Gullan on a collecting trip through Western Australia and the Northern Territory. Both had great success in finding insects of interest (chironomids and ants, respectively) and will be spending the next few months (years?) staring down microscopes curating

Chris Reid demonstrating his beating technique for collecting chrysomelids in bushes. [Photo: Roger Farrow]

the material. Steve says it is well worth it as he collected a new genus of ants from the Perth region as well as finding a few specimens of it in Jonathan Majer's collection.

Ebbe Nielsen and Tom Weir have also been on collecting trips recently. Ebbe spent a few days at Brookfield Conservation Park, South Australia, to continue the baseline monitoring program which began last year. Tom was in North Queensland establishing the insect survey sites for the Cape York Peninsula Land Use Strategy project. Several weeks later, Ebbe travelled to Cape York to confirm that Tom had done his usual outstanding job, and to sort out the administrative tangles associated with this type of large project. GeoffClarke, meanwhile, was in Russia for a month participating in a long-term project establishing monitoring methods to determine the effects of environmental contamination on invertebrates.

Ian Naumann has visited several collections recently to examine chalcids, pteromalids, and Girault types. He was in Brisbane and spent time at the Forestry Department, the Department of Primary Industries, the Queensland Museum, and the University of Queensland. Later, he travelled to Adelaide to visit the South Australian Museum and Andy Austin of the Waite.

Marianne Horak, David Rentz, Ebbe Nielsen and Penny Greenslade participated in the XIX International Congress of Entomology in Beijing. All came back with reports of a well organised congress with 4000 participants and excellent facilities. Before the Congress, Ebbe was in London to take part in the "Systematics and Conservation Evaluation" conference and the IUCN workshop titled "Beyond hotspots - Global biodiversity priorities after Rio '92". Bob Taylor was also overseas recently, taking part in the retirement celebrations for Dr. W. L. Brown of Cornell University. Bob then travelled to Britain and Europe to combine visits with colleagues and site-seeing.

Many visitors have been stopping in Canberra to visit the collection and to work with coresearchers. Andy Austin and Paul Dangerfield, both from the Waite Institute, Adelaide, stopped by to examine assorted braconids with Ian Naumann. Also visiting Ian was Ros Blanche from Macquarie University, who is interested in gall-forming insects. Archie McArthur was in Canberra for a week having a look at ants of the genus Camponotus with Steve Shattuck. Dave Rentz and John Lawrence were visited by Jarmila Kukalova-Peck, who is continuing her work on insect wings.

Two significant insect collections have recently been donated to the ANIC. The Len and Ruth

Couchman collection of butterflies was transfered from Hobart to Canberra by Ted Edwards and Murray Upton. Len Couchman died in June shortly after having been made a Member of the General Division of the Order of Australia for his services to entomology. An account of Len's life, collection, and contributions to lepidopterology will appear in the next issue of Myrmecia. The second collection is that of W. J. M. Vestjens, a long-time researcher in the CSIRO Division of Wildlife. His collection consists of about 40 drawers of beetles, 25 drawers of Lepidoptera, and 22 topical display cases depicting the role of insects in the environment. Although the collection contains primarily Australian species, it also has significant material from Europe, southeast Asia and South America.

The ANIC has released two major publications recently. The first issue of "ANIC News - The official newsletter of the Australian National Insect Collection" was published in June. The Newsletter, which is distributed to members of the ANIC Fund and those interested in the ANIC and its activities, will appear half yearly. The ANIC "Report of Research: June 1987 - May, 1991" has also been completed and was enclosed with the first issue of the Newsletter. Those interested in these publications should contact Geoff Clarke, the editor of the ANIC News, on (06) 246-4036. The other noteworthy publication is Volume 6 of Elwood Zimmerman's "Australian Weevils". This is the second and final volume of colour plates, and is well worth a look. Zimmie has also completed the page proofs for Volume 3, the first text volume to be published, which should appear in the near future.

Steve Shattuck
Regional Councillor

NORTH QUEENSLAND

James Cook Univ., Biological Sciences

Richard Rowe attended the 1992 North American Benthological Society conference in Louisville, Kentucky, in May to present an invited paper on 'Agonistic behaviour in larval Odonata' at a special session on dragonfly ecology. Despite jet-lag and a bout of 'flu this proved a success. He spent a week after the conference studying the behaviour of *Calopteryx* damselfly larvae - an example of a family not available in Australia.

Richard's paper earlier this year on ontogeny of agonistic behaviour in a damselfly larva was picked up by the BBC Wildlife magazine who ran a feature article on the subject in May.

Manju Prasad visited Mareeba in June to collect *Epilachna* spp. and plant material for feeding resistance and host preference studies.

Tropical Weeds Research Centre, Qld Dept of Lands

Lastus Kuniata, Entomologist, from Ramu Sugar, Papua New Guinea, visited TWRC to look over the *Mimosa invisa* biological control program. A third consignment of the psyllid *Heteropsylla incisa* will soon be forwarded to Laloki, PNG.

Marie Ablin is rejuvenating after assisting to organise the Second Queensland Weeds Symposium in Townsville before she plunges into helping with the AES 24th AGM and Conference. A lesson learnt - no one adheres to deadlines! (*Too true - the TWRC report arrived after the advertised deadline for Myrmecia - ed.*)

Brian Willson from AFRS updated the 180 Weed Symposium delegates on "Future Prospects in Biological Control of Weeds" and also briefly visited TWRC.

This is the first year which TWRC has hosted projects conducted under the CSIRO Student Research Scheme.

QDPI - Mareeba and Innisfail

Dale and Phyllis Habeck, University of Florida, Gainesville, have based themselves at QDPI Mareeba for 4 months to look at potential lepidopteran biological control agents for the water weed, *Hydrilla*, which is causing severe problems in waterways in Florida.

Paul Zborowski, formerly of the APLC, has joined the Department in Mareeba to undertake routine insect surveys as part of the Cape York Land Use Strategy. Most sampling will be undertaken around Batavia Downs east of Weipa, but additional sites include Laura and Heathlands and possibly areas on the west coast. He was joined by Tom Weir (ANIC) on the initial trip when much of their efforts were directed to ensuring trapping sites were fire-safe.

Integrated pest management in citrus and papaws in the Mareeba district will soon enter a new phase when an entomologist is employed to provide a scouting service for these crops. The project is being supported by HRDC and local growers and managed by QDPI.

Chris Reid (ANU) spent a few days in the north recently sampling Chrysomelidae and looking over Ross Storey's collection in Mareeba before moving on to Darwin.

Ruth Huwer is currently in Germany for a few weeks break from her fruitspotting bug studies. Whilst there she will catch up with her university supervisor, Prof. H. Schmutterer, and no doubt her mother's cooking.

BSES - Meringa

Keith Chandler visited PNG recently to look at pests of sugarcane at Ramu. He also spent time in the highlands at the Coffee Research Institute, Kainantu, where cicadas have been causing problems in coffee. Keith reports that the institute has a potential entomologist in Jimi Apety, who is about to undergo 12 months training in Australia.

A group from BSES, Incitec and QDPI met at Meringa in July to discuss controlled-release insecticide studies. Entomologists included Peter Allsopp, Peter Samson, David Holdom and Les Robertson, and an overwhelmed Keith Chandler.

Queensland Health - Cairns

Since the end of April David Sinclair has

completed field trips to the Aboriginal communities of Yarrabah, Hopevale, Wujal Wujal, Aurukun, Doomadgee and Ganuna to search for breeding *Aedes aegypti*. No breeding was found.

David spent one week in Townsville in May providing technical assistance and advice to the City Council and the Northern Regional Health Authority in relation to the Dengue epidemic there. Several hundred cases of Dengue type 2 occurred but the epidemic is now in decline due to the onset of winter. Continuing his busy schedule David spent 2 weeks in Torres Strait in June heading a vector control team responding to a case of Dengue type 2 on Thursday Island. Extensive control operations were implemented on that island, and house-to-house surveys were undertaken on Horn, Hammond and Prince of Wales Islands, and on the mainland at Bamaga, Umagico, Seisia, Injinoo and New Mapoon. This was a preventative measure to ensure that an epidemic did not occur in the Torres Strait. One case of Dengue type 2 was recorded in Cairns in June. David has prepared a map of the distribution of *Aedes aegypti* in Queensland for the period January 1, 1900 - June 30, 1992, for publication in the July issue of the "Bulletin of the Mosquito Control Association of Australia".

Harry FAY
Regional Councillor

S.E. QUEENSLAND

Lands Dept, Alan Fletcher Research Station

Jenny Marohasy has recently returned to Brisbane after a three year sojourn in Kenya. Jenny was in Kenya to survey the insects feeding on Prickly Acacia, *Acacia nilotica*, and identify potential biological control agents. Three species were sent to Australia during this time, a Chrysomelid, a Cerambycid, and a Psyllid.

Brian Wilson attended the recent Noxious Weeds workshop held in Townsville. This was the second workshop of its kind in Queensland.

CSIRO Long Pocket

Tony Wright visited Thailand and Malaysia in March, as part of the ACIAR project on biological control of water hyacinth. He took a shipment of 1500 adult *Neochetina bruchi* (the new water hyacinth weevil) to Banpot Napompeth in Thailand, and later travelled by road with Banpot to as many infestations as possible between Bangkok and Chang Mai. Besides monitoring sites and releasing insects, Tony took video footage of water hyacinth problems. Tony spent two days attending the Eighth Asian Agricultural Symposium on Agriculture and Environment i Chang Mai. In Malaysia, Tony spent three days at Serdang visiting and filming water hyacinth infestations and discussing collaborative work on biological control of water hyacinth with friends from ASEAN-PLANTI, MARDI and the DOA.

Peter Allingham from the Division of Animal Production has won a CSIRO overseas study award. Peter will spend five months working with Dr Mike Lehane at the University of North Wales on aspects of the physiology of blood-sucking insects and a month in the United States visiting Professor Dov Borovsky's laboratory at Vero Beach, Florida and the USDA's Kerrville laboratory.

Queensland Forestry Service

Brenton Peters' survey of known foci of the West Indian Drywood Termite, *Cryptotermes brevis*, is nearing completion. Fumigation of twelve buildings in Maryborough and Brisbane has commenced, including one National Trust listed building in Maryborough. A further seven buildings are known to require fumigation and will be the basis of a future contract.

Ross Wylie joined the hoards of entomologists who went to the International Congress of Entomology in Beijing.

Queensland Institute of Medical Research

Dr Scott Ritchie has been appointed to the new NHMRC medical entomology position. He will be working on salt marsh mosquitoes, in a project funded by Queensland local government authorities. During a brief visit before taking up the appointment in September, Dr Ritchie made helicopter inspections of the regions concerned. He also visited the mosquito control sections of the Brisbane City Council and the Albert and Logan Shire Councils, and met with representatives of NEMMO and CLAG.

Griffith University

At long last Roger Kitching has taken up the Foundation Chair in Ecology at the Division of Environmental Studies, and has been frantically trying to get laboratory and office in order. He has established an arthropod biodiversity laboratory at Griffith and will continue to struggle with the arthropods from forest canopies - the first major paper on the topic will appear shortly in *Australian Journal of Ecology!* All the collections and data from previous work at Lamington and Cape Tribulation have been moved and active work, much of it in collaboration with other arthropodologists, is progressing on the Diptera(Chloropidae, Phoridae, Tipulidae, Chironomidae, Lauxaniidae), Coleoptera, Psocoptera, Collembola, Araneida, Isopoda and Heteroptera. Active collaborators for other groups are being sought - any offers?

Heather Mitchell and Elsa Dexter moved with Roger to Griffith from UNE, Heather to be a general assistant in the biodiversity lab., and Elsa to continue working on the ANPWS-funded 'Conservation Status of Butterflies' project.

Jon Marshall and Sonja Schmidt continue their studies in the rainforest streams of the Connondale Ranges. Sonja is investigating gene flow among populations of Ephemeroptera, whilst Jon is working on food webs in rainforest stream pools. Both projects form part of the overall research by Stuart Bunn and Jane Hughes on stream invertebrate fauna of the region.

Graham Floater has arrived from Oxford University to begin study for his doctorate, probably focussing on host-plant specificity in

rainforest Coleoptera. Dave Brown from Melbourne University is due any day to start Honours at Griffith on aspects of the biodiversity of Psocoptera from the canopies of subtropical rainforests.

University of Queensland

The Department of Entomology has recently lost two long standing staff members with the early retirement of Phil Webb (Scientific Officer) and Dave Morgan (Technician). Andrew Noskoff has now been appointed Scientific Officer in the area of insect physiology. Tony Clarke has been awarded his doctorate on Green Vegetable Bug biological control and Lesley Ballantine has submitted her PhD on the taxonomy and biogeography of the Lampyridae.

Congratulations are also in order for Glynn Maynard who is moving to Canberra to take up a permanent position as sub-editor with the ANPWS-funded ABRS catalogue of Australian Zoology.

Gimme Walter has returned to the department after a summer season in Finland (including snow on midsummer night!), while Elizabeth Exley is off to Fiji to participate in a biological control training course. She will be demonstrating insect collecting, rearing, identification and museum techniques to representatives from throughout the Pacific. Departmental postgrads Melina Miles, Chris Pavey, Rieks van Klinken and Michael Ryan are enjoying the warmer climes of Iron Range, Coen Chillagoe and Brampston Beach collecting fruitflies and insects associated with bats. Chris Pavey recently received a substantial travel grant from the Wet Tropics Management Agency for his studies on the insect diets of bats.

Recent departmental visitors include a contingent from South Africa, all colleagues of Hugh Paterson. Dr Rob Toms from the Transvaal Museum, and Drs Maureen Coetzee and Richard Hunt from the South African Institute of Medical Research presented seminars on aspects of their work relating to the evolution of mate recognition signals, species concepts, and vector identification systems.

Queensland Museum

Congratulations to the Queensland Museum are in order, as both Geoff Monteith's book on 'The Butterfly Man of Kuranda' and the new Society-sponsored Insect Poster, launched during the recent 'Living with Insects' exhibition received design awards at an annual function convened by the Brisbane Art Director's Association.

The main tour of the Museum's highly successful travelling exhibition based on the collection of Frederick Parkhurst Dodd (The Butterfly Man of Kuranda) concludes at the Gold Coast's Currumbin Sanctuary in mid July. Somewhere in excess of 175,000 people have viewed the display at venues in 15 Queensland centres since the tour started in April 1991. In September the display makes a brief appearance at Toowoomba in appropriate conjunction with that city's annual 'Carnival of Flowers'. Plans are in hand for a further tour to the far northwest centres of Cloncurry, Mt Isa and Charters Towers in the autumn-winter of 1993.

Education officer Heather Janetzki visited New Zealand in May to present a paper (jointly with Geoff Monteith) on the Museum's program of insect workshops for teachers, to the Annual Conference of the New Zealand Entomological Society. Heather viewed the captive breeding program for New Zealand wetas for hints on how to keep Australian wetas (known here as 'king crickets') alive. She also held discussions on the possibility of a New Zealand tour of 'The Butterfly Man of Kuranda' and prospects look very good.

The results from Geoff's National Rainforest Conservation Program-funded project on rainforest insects of S.E. Queensland are being processed. Doug Cook carried out the trapping (pitfall and flight intercept) at 30 sites last summer. Areli Mira, Jenny Ludeke and Judy Cantrell have been toiling over the samples and so far about 12,000 specimens have been pinned and labelled, still only the tip of the iceberg! A second grant has been received to repeat the process in Central Queensland next summer.

Kevin Lambkin, with interests in Neuroptera, Mecoptera and fossil insects, arrives in August to spend two and a half years with the Museum, replacing Ted Dahms. Ted is moving to a temporary administrative position with the Parliamentary Public Accounts Committee. He recently presented a paper on Australian *Aphytis* at the Entomological Congress at Beijing.

The International Congress of Arachnology is in full swing at the Museum at present, with 125 delegates from 26 countries. Forty of thse delegates are journeying north for a field trip to Cape Tribulation.

Centre for Tropical Pest Management

The Centre has welcomed many new staff over the last few months. Paula Cathcart, who has just completed her PhD in the Department of Microbiology at UQ, has been appointed research assistant to Geoff Norton. Michele Dale has been appointed as IPM Facilitator. Michele has trained as a plant pathologist. Programmer Greg Hall joins Bob Sutherst and Gunther Maywald in General Modelling. Robert Merlicek has joined the CAL (Computer Assisted Learning) group providing computer packages and instructional material to the Centre's integrated pest management program. Paula, Michele, Greg and Robert will be based in the Gehrmann Laboratories (the rapidly filling CRC building). Jim Hanan, new post-doctoral fellow with the plant modelling group, is from the University of Regina, Saskatoon, and will be based at the CSIRO Meirs Road Laboratories.

Lucy Maillette from the Department of Biological Sciences at the University of Calgary, will be visiting the Centre for six weeks from mid July. She will work with Peter Room and Jim Hanan on development of the plant growth/insect damage model. John Mumford from Silwood Pest Management Centre, Imperial College visited recently, presenting a seminar on the economics

and management of fruit flies in North Africa and the Indian Ocean.

Manon GRIFFITHS
Regional Councillor

DPI Entomology Branch

Members of the fruit disinfestation group (Indooroopilly) have been travelling again - Robert Corcoran to the Mango Research Conference in Miami and Neil Heather to the ACIAR project collaborators in Manila and Bangkok and then on to Beijing for the International Congress.

Dave Murray and Richard Lloyd (Toowoomba) attended the 9th Conference of the Australian Sunflower Association at Yeppoon in April. They presented papers on biocontrol of heliothis and Rutherglen bug and generally enjoyed themselves at the Capricornia International Resort.

Dr Theo Schmitt, University of Freiburg, Germany visited Neil Gough and Brian Montgomery (Indooroopilly). Theo who is an authority on the biology and morphology of the Criocerinae discussed the biology of the orchid beetle on which Neil and Brian have been working.

Judy Grimshaw (Indooroopilly) attended the 12th International Congress of Arachnology held in Brisbane in July. This was her first arachnology congress and she says it was a 'real buzz'. It was also her first time on an organising committee, this was exhausting. This exhausting schedule was quickly followed by 2 days in freezing Canberra, which was somewhat of a shock for someone more accustomed to travelling in the tropics.

The Applethorpe contingent Frank Page, Peter Nimmo and Sam Scalora (pest consultant) attended the final review meeting of the HRDC - funded project 'Implementation of Integrated Mite Control in Apples' at Orange in May. The overall objectives of the project have been met. The meeting allowed for a valuable interchange of results, ideas, and discussion of related topics. Frank reports that some insects are well adapted to survive the notorious winter at Stanthorpe - the apple dimpling bug (as well as a range of other species) is quite common on wattles in the district in June/July.

Iain Kay (Bundaberg) was visited by Geoff Norton and John Rogers (CTPM) during their central Qld tour. They also toured the BSES laboratories which had been abandoned by both Peter Allsopp and Peter Sampson in favour of sunny Cairns. The two tourists also met with other DPI staff from Emerald, Biloela and Rockhampton to discuss possible cooperative projects.

Dave Murray and Brad Scholz (Toowoomba) were visited by Prof Guo Jin Cheng and Ass Professors Li Yu Kui, Chen Jianhua and Wang Kunbo from the Cotton Research Institute, Anyang, China, to discuss current cotton pest research.

After spending the last six months working with John Rogers and Hugh Brier (Kingaroy) on white grub damage to peanut plants, John Wightman left Toowoomba in mid-June en route to the second half of his sabbatical at the Integrated Plant Protection Centre, Corvallis Oregon. John is the Principal Legumes Entomologist and Groundnut Group leader at ICRISAT, Hyderabad.

I.P.M. - BUGS for BUGS

The company (Mundubbera) recently purchased the butter factory which they previously leased from Suncoast Pty. Ltd. This is a great relief to Dan Papacek as it increases the stability of the organisation. Any of the continuing improvements to the premises are now directly beneficial. New members to join the team are Gary Artlett and Sue Loveday. Jeff Watson leaves to set up an I.P.M. program for citrus in Northern Queensland in conjunction with Ian Cunningham. Dan has recently returned from the 7th International Citrus Congress in Sicily and included a study tour of insectary facilities in Europe. As a result, at least 3 European suppliers of beneficials have expressed interest in importing parasitic and predatory arthropods from Bugs for Bugs. To date 4 trial shipments have been dispatched and they are working to develop this potential market. Recent visitors included Geoff Norton and John Rogers of CTPM and Dr Vaughan Hattingh of Outspan Citrus Centre South Africa will be visiting during July.

Bernie FRANZMANN
Regional Councillor

VICTORIA

Museum of Victoria
Entomology Department

The major piece of news from the Entomology Department is that, after acting as Curator for two and a half years, Ken Walker has finally been promoted into the position ! Congratulations Ken - now you can sit back and regrow all the hair you lost during your stint as Acting Curator !

The very popular butterfly display (Skydancers) has ended. Since its opening, the closing date was extended twice. Congratulations to Ken Walker and Catriona MacPhee for putting on such a stunning display in very little time. The display could not have gone ahead without the assistance of various people across Australia, but a special mention must be made of David Holmes, who loaned his overseas butterfly collection for the exhibition.

'Flu aside, Graham Milledge attended the International Congress of Arachnology in Brisbane.

Museum of Victoria
Invertebrate Survey

Two new temporary staff, Amanda Kobelt and Richard Kay, have started on a grassland invertebrate conservation project funded by the

Australian National Parks and Wildlife. They will be attempting to rank remnant grasslands on the basalt plains of western Victoria using invertebrates and comparing this with botanical rankings.

Alan Yen is suffering from conference fever, having attended the Biodiversity Conference in Canberra and the XIX International Congress of Entomology in Beijing.

Department of Food & Agriculture, Institute of Plant Sciences, Burnley

Two Burnley entomologists, Paul Horne and John Osmelak, made a flying two-week visit to Papua New Guinea in early July to investigate cicada problems in coffee plantations. They visited both the Eastern and Western Highlands, despite election-related bothers, and found cicada nymphs in all places. In the worst affected areas, more than 1000 cicadas were feeding on the roots of the coffee bushes. Further trips to assess control measures are planned and a final report will be made in November. Paul and John were accompanied by the entomologist from the Coffee Research Institute, Jimmy Apety, who will be in Melbourne (La Trobe University) for approximately twelve months from August.

Paul Horne has also been involved in supplying biocontrol agents (parasitoid wasps) to the Yemen. Three species of parasitoids which attack the potato moth are being reared in the insectary at Burnley and sent overseas for release.

Roger Kitching, recently appointed Professor at Griffith University, Brisbane, dropped in to Burnley during his recent visit to Melbourne. He held discussions with Kelvyn Dunn about butterflies, caught up with Mali Malipatil and Peter Williams, and perused the Victorian Agricultural Insect Collection.

Entomologists and molecular biologists from the IPS, together with colleagues from CSIRO Division of Entomology, the departments of Zoology and Genetics and Human Variation at LaTrobe University and the Keith Turnbull Research Institute, have joined forces and put together a submission for a "Centre for Biological Alternatives to Pesticides" to the CRC Committee (3rd round). The experience of working together was a very positive one, although (let's face it) no-one enjoys writing submissions ! Garry McDonald escaped the final hectic hours of meeting the July 1 deadline by attending the XIX International Congress of Entomology, where he delivered a paper to the Migration Symposium. The Congress appeared to be a great success.

Peter Ridland and Peter Cole visited Dave Murray and Brad Scholz at QDPI, Toowoomba, to discuss rearing methods for egg and larval parasitoids of *Helicoverpa*. The trip proved most informative and should result in many improvements to the parasitoid colonies at IPS. Jim Woodward joined the Harley Rose annual ground-burrowing cockroach foray and travelled north into central Queensland. Specimens of several new species were collected on the trip.

Some very important news which just missed the last issue of "Myrmecia" was the arrival of "The Hornet" i.e. Janet and Paul Horne's first child (James Ernest), who was born on the 18th day of May, 1992. James showed innate organisational skills by arriving two weeks early, and as a result has been tentatively appointed Convenor of the 47th AGM and Scientific Conference in 2016 !

Alan YEN & Andrew HENDERSON
Regional Councillors

WESTERN AUSTRALIA

IEC Beijing

Eight people from Western Australia attended the congress, these were James Ridsdill-Smith (CSIRO), Janet Farr (CALM), Win Bailey and Leigh Simmons (UWA), John Sandow (ICI), Kingsley Fisher, Ian Dadour and Francoise Berlandier (WADA). With 3000 people attending the conference, some had a pretty busy time chasing contacts.

University of W.A.

Some of the higher degree students have left the Zoology Department after completing their degrees. Congratulations go to Wandee Chokbowonthanasarn (MSc) and Supatra Dolsopon (PhD) who have returned to Thailand to work with the Thai Department of Agriculture, and Mark Heap (MSc) who is currently at the DPI, Mt Gambier, and Louis Lebel (PhD) who has taken off to southern Thailand to research mountain stream insects and teach evolutionary biology at the Prince of Songkla University. Amanda Annells has come from CSIRO, Floreat Park, to start her PhD on the mating systems of the red-legged earth mite, sponsored by the Australian Wool Board.

Following Todd Shelly's departure to the Evolutionary Biology Group at Hawaii, Geoff Allen has returned to Australia from Riverside to take up a post-doc in the Zoology Department looking at the influence of tachinids on the calling behaviour of tettigoniids. Win Bailey has become more involved with bats than with bush crickets at the moment, supervising (with Jamie O'Shea) an honours student, Dave Hoskin, on the predation of bushcrickets by various bat species.

Curtin University

Jonathan Majer has gone to Brazil and the U.K. for three months, primarily long service leave, doing some work on the recolonization of ants in a bauxite mine at Trombetas in the Amazon. The aim is to get a data point on the rate of succession in a truly tropical ecosystem.

H. Park has returned to Korea for six weeks in order to see his family. In the meantime he is still continuing his PhD thesis.

Anne Scougall has returned from her stay with the E.P.A. to start her PhD on the establishment of

ecological processes in revegetation of the W.A. wheatbelt.

Department of Agriculture

Dave Cook recently visited the USA and photographed a sign at Monterey, south of San Francisco (see photo). Dave was interested to learn how someone could 'molest' a butterfly, but whatever it means, the fine is pretty steep. The area is apparently right in the flight path of the butterfly.

Meanwhile Janet's assistants Steve and Iain conducted the bi-annual "lerp trip", during which they found further evidence of trees resistant to attack by *C. jerramungae*. Janet and her team hope to do some chemical typing of these trees in association with a contact established at the Entomology Congress.

CSIRO

James Ridsdill-Smith was able to meet up with some more mite workers during the Congress in China. As mentioned before, Amanda Annells left the CSIRO to take up her PhD on the sex determination of red-legged earth mites, and has been replaced by Kylie Gaull, an honours graduate from the Dept. of Zoology, University of Western Australia.

Dave Cook's photo snapped at Monterey in California (see text: WA Dept of Agriculture)

Dept of CALM

Janet Farr has just spent her annual leave attending the International Entomology Congress in Beijing. Janet and co-author Stephen Dick presented a poster featuring the described psyllid *Cardiaspina jerramungae* Taylor, which is outbreaking on *Eucalyptus occidentalis* on the south coast of Western Australia. Following the Congress, Janet took a post-congress tour to Tibet. The majority of entomologists attending the tour agreed that this was the "pinnacle of our lives' achievements".

W.A. Museum

The Museum had a brief visit from Clarke Scholtz of the University of Pretoria, south Africa, and his Canadian colleague Stan Caveney. They inspected the trogid beetle collection prior to heading north for two weeks in a quest to find larval stages of flightless *Trox* species. Archie

McArthur from the S.A. Museum spent three days going through the *Camponotus* collection.

NORTHERN TERRITORY

CSIRO, Division of Entomology

Well it's "When smoke gets in your eyes" time in the Top End. The Dry is well and truly with us and the bush is burning. Most recent field work has concentrated on tidying up field experiments and monitoring projects before the fires terminate them for us. This has been complicated somewhat by the late seed set in mimosa, necessitating a game of Russian roulette with our litter tray sites. Leaving the trays out means a better chance of collecting the full season's seed rain, but runs the chance of losing all the data to fire. All trays have now been collected and density estimates for the stem boring moth, *Neurostrota gunniella*, have been made at each litter tray site. Once the seed rain data has been processed, we will have a second year of data showing the relationship between moth density and mimosa fitness.

May saw Darwin host the first International Workshop on *Mimosa pigra* Management. This joint extravaganza between CSIRO and DPI&F saw participants from SE Asia and America trekking around field sites on the Adelaide River flood plains, between Berrimah Farm and TERC and other areas of scenic beauty in the Top End. As with most meetings of this sort, in between the trekking a lot of talking was done and this talking was usually the most productive part of the workshop. As representatives from nearly every country where mimosa is a problem were present, the workshop provided a useful forum in which to exchange information about the problems caused by the weed, potential solutions and to canvass future directions for research.

In the week leading up to the workshop, Wendy Forno, Ken Harley and Jim Cullen visited TERC. Jim was in Darwin for a few days to talk to honorary entomologist Mark Lonsdale and Grant Farrell about *Mimosa* and *Sida* biocontrol programs. Wendy and Ken were involved with the running of the workshop and so had the excuse to spend more time in paradise. Another recent visitor was Tim Heard, from CSIRO Brisbane, who spent his time between TERC and Berrimah Farm talking biocontrol and helping DPI&F with their rearing program for the mimosa control agent Apion aculeatum. The federal Minister for Science and Technology, Ross Free, was in the Top End in the second week of July and included a visit to TERC where, amongst other things, he talked with Mark Lonsdale and Grant Farrell about the mimosa program.

After six months of splitting open mimosa stems looking for *N. gunniella* larvae (and still having all her fingers), Lisa Knight has decided that the work is so exciting she wants more. Strange girl. Anyway, such boundless enthusiasm and good taste should not go unrewarded, so this time we are also going to let her sort for mimosa seeds in the material collected in the litter trays. Lisa will be gracing the labs for another five months. Anne Lane just keeps on keeping on, including keeping the rest of us honest and continually amazing us with what she gets done in the field.

CSIRO, Division of Wildlife and Ecology

Alan Andersen reports that a two year consultancy project with the Office of the Supervising Scientist has just commenced. The project will examine the role of ants in minesite restoration, and especially focus on the use of ants as bio-indicators of restoration success. Scott Morrison has been appointed to assist with the project. Alan will be attending the Ecological Society conference at Roseworthy in September, and presenting a paper on the influence of meat ants on ant communities.

NT Health, Medical Entomology Branch

We are now well into the Dry season and mosquito numbers are at very low levels in Darwin and most inland areas. Jabiru and the coastal swamps together with the more permanent swamps and lagoons in the Top End continue to produce ample mosquitoes in the rural and tourist areas.

The last month has seen everybody in the Branch compiling all the data for our annual report. A separate Branch Report on the results of our activities is available to anybody on request. One notable achievement highlighted in the Branch Report is a steady trend from 1983 to the present of an overall reduction in mosquito numbers in the Darwin mosquito breeding areas from over 300 mosquitoes per trap night to now less than 100 per trap night.

All members of the Branch have been involved in work related to early and unseasonal hatches of *Aedes vigilax* around Darwin over the last month. Control measures however have been very unsuccessful.

Paul Donaldson has taken rec leave in July and August and will be followed by David Logan, who is racing to finish the investigations of an insecticidal block to kill flies in wheelie bins. Gwenda Hayes and Peter Whelan will be looking after the helicopter applied salt marsh mosquito program until Paul returns.

Visitors to the Branch included Mike Lane, talking about communicable diseases and vector mosquitoes, and Geoff Standen discussing the successful progress of mosquito control in the Katherine area.

DPI&F, Weeds Branch

An International Workshop on the Management of *Mimosa pigra* was hosted by the DPI&F Weeds Branch in Darwin during May. Delegates attended from Florida, Thailand, Malaysia, Vietnam, Indonesia, Papua New Guinea and from other parts of Australia. Dr Wendy Forno

of CSIRO Brisbane was the chief organiser. Although many of the delegates were more interested in carpet bombing the weed with nasty chemical concoctions, there were a few sensitive, new-age biocontrollers attending, such as Dr Banpot Napompeth from Thailand and Dr Ken Harley from Brisbane.

An independent review of biological control of weeds commissioned by the Department concluded what we could have told them all along, that we do a good job. It was recommended that funding continue at least at present levels indexed for inflation, but it remains to be seen whether or not this will occur.

Colin Wilson, Grant Flanagan and Merrilyn Paskins spent a week surveying the Finniss River for mimosa biocontrol agents, while a very gravid Carey Smith processed samples in the laboratory. The leaf beetle *Chlamisus mimosae*, previously considered restricted in distribution and extremely scarce, turned up in all samples and in some places was more abundant than the mosquitoes. On second thoughts, they weren't that abundant, but there were probably more beetles than crocodiles.

DPI&F, Entomology Branch

The saga of *Thrips palmi* continues and four states have now imposed quarantine restrictions on NT horticultural produce. This necessitates the monitoring of all producing areas to enable export certification on an "area" or "property freedom" basis. Some of the many Vietnamese growers producing Asian vegetables for the southern markets will be hardest hit by the new restrictions. The prospect of a long thrips filled Dry season has prompted Jaye Layland to resign and seek greener pastures in northern NSW. Her thrips experience, enthusiasm and expertise will be sorely missed. In protest at Jaye's action, Haidee Brown took a weekend off from the thrips action to "tie the knot".

With the rapid increase in the nursery and cut flower industries in the NT, Deanna Chin, Shane Griffiths, Mike Neal and Stuart Smith are all involved with several projects on pests of ornamental and amenity plants.

The first confirmed detection of European wasp in the NT was recorded in June when a queen was found in Tennant Creek. Phil Spradbury in Canberra thought that the wasp was probably carried in truck cargo to Tennant and captured as it emerged into 30°C days from the southern winter's chill but before it established in the area.

DPI&F, Quarantine and Inspection

Ted Fenner attended a meeting on national protocols for Queensland fruit fly quarantine requirements in Brisbane in April, and the Chief Quarantine Officer's (Plants) Conference on the same visit. In June, Mike Catley of AQIS, Canberra, visited Darwin and was taken on a flight to several remote locations to give him an idea of the task of surveillance under NAQS.

On recreation leave in north Queensland in July, Ted visited Steve Johnson in Townsville and swapped butterfly news.

NAQS duties have kept Hermes Perona on the move in recent months. In April he participated in a preliminary survey of the Cox Peninsula and in May a major survey from Croker Island to Nhulunbuy. In June, Hermes travelled interstate twice - first to a NAQS Operations Committee meeting in Cairns and later to a screw-worm identification workshop run by Don Colless in Canberra. He is now the best-informed person in the Territory on SWF recognition!

NT Museum

A spate of visitors arachnological and entomological in May/June benefited the Museum collection. Mark Harvey and Julianne Waldcock (WA Museum) spared time from their northern quest for mites and spiders to put sections of the NT arachnid collection into order, and Chris Reid (ANU) reduced the confusion among the chrysomelids.

Ivor Lansbury (Oxford) visited in June, and in July Peter Bailey (Adelaide) looked in - sadly to find that we had sent out on loan almost every millipede in the collection. Sorry Peter!

Our "find" for this issue is the discovery by NT Conservation Commission officers of a population of the wonderfully coloured Leichhardt's grasshopper, *Petasida ephipiggera*, in the Keep River National Park to the west of Katherine near the WA border. It was previously recorded from Arnhem Land only.

Wanderings have included a collecting trip to Litchfield Park and visits by Alice Wells to Melbourne where she met with other caddisfly workers, and to Canberra where, under the patient tutelage of Ted Edwards and Marianne Horak, she tried to learn some of the mysteries of microlepidoptera classification.

Office of the Supervising Scientist, Alligator Rivers Region Research Institute

Visitors to ARRRI included carcinologist Dr Satish Choy (University of Brunei) to look at our atyid decapod collection; hemipterist Ivor Lansbury (Oxford) was keen to collect gerrids from the region, and kindly spent some time naming specimens in our collection of aquatic hemiptera; finally, Mark Harvey (WA Museum) dropped in to assist Peter Dostine with water mite identifications.

CSIRO's Michael Storrs, working on the salvinia control program, is delighted with the gradual reappearance of the biocontrol weevil *Cyrtobagous salviniae* after its vanishing act during the past hot "wet" season.

Peter DOSTINE
NT Regional Councillor

SOUTH AUSTRALIA

Crop Protection Department (Entomology Group), Waite Institute

The new Masters Degree in Crop Protection commenced on 1 July and has an enrolment of five students, all from overseas (Indonesia, Iran and El Salvador). One student, Mr Sassan Asgari, will be undertaking an entomological major as part of this course. His project will be on the biology and systematics of a group of hymenopteran parasitoids, which he will start once he has completed the course work component.

Mike Keller has recently returned from study leave. he attended the International Entomophagous Insects Workshop in Florida in June, then spent time at the USDA in Tifton, Georgia, working with Joe Lewis afterwards, and the Entomology Department at the University of Queensland. Three new people have joined Mike Keller's group: Ms Roya Talei to undertake a Ph.D. on the life history traits of microgastrine braconid wasps, Ms Lynn Johnson also to do a Ph.D. on the parasitoids of diamondback moth, and Associate Professor Young-Duck Chang from Chungnam University, Korea, who is spending six months study leave in the Department.

Otto Schmidt attended the International Congress in Beijing and delivered an invited paper on the role of parasitoid polydnaviruses and the way they overcome host immune defences. He returned to Australia via Germany to finalise his research projects at the University of Freiburg.

Dr Mark Dowton has recently commenced work in Andy Austin's laboratory as a postdoctoral fellow studying the molecular phylogeny of the parasitic Hymenoptera. Mark originally hails from Wollongong University and Max-Planck Institute, Germany. Andy recently attended the International Arachnology Congress at Queensland Museum and an Ecological Society workshop on Biodiversity and Conservation at the Royal Society rooms in Adelaide, at which he delivered papers.

Derek Maelzer has also recently returned from six months study leave, spending most of this time in the Entomology Department at the University of Queensland, but visiting a number of other institutions, including the Zoology Department at James Cook University. Jörg Kitt, a Ph.D. student of Derek's, is currently visiting institutions in Germany while on holidays, and will be collecting parasitoids of rose aphid to ship back to the Department as part of his research on the biological control of this species.

Dr Jane Drummond has temporarily left the insect pathology laboratory and taken her Wool Corporation project, on the biological control of sheep lice, to the Biotechnology Centre, University of NSW. Gary Taylor has just successfully completed his Masters Qualifying period and has already started his research project on the physiological effects of heteropteran saliva on plants.

South Australian Health Commission

Phil Weinstein reports that the 1991-92 Ross River Virus season has been non-epidemic, with only sixteen notifications after mid February and all of these being acquired in Queensland or Victoria. Also single cases of dengue fever and Murray Valley encephalitis were reported. Apparent pyrethrin resistance in local headlice has now been overcome by the recommendation of malathion-based pediculicides as the treatment of choice for the next three years.

South Australian Department of Agriculture.

Greg Baker and Dennis Hopkins attended the Fifth Australian Applied Entomology Research Conference in Canberra in April. Greg presented a model on his pea weevil studies and Dennis presented a paper on snails (jointly with Geoff Baker, CSIRO). Greg Baker visited BCRI, Rydalmere, in June for discussions with Victor Rajakulendran and attended a seminar on *Bacillus thuringiensis* present by Dr Brian Malin of Abbott Laboratories. Peter Bailey took four weeks leave in July and headed north to enjoy the sights of Kakadu.

Prof. Otto Schmidt, Head of the Crop Protection Department, Waite Institute, visited the Northfield Research Labs in early June and held discussions with crop protection staff. Hua Chong Zhao, a Plant Protection Agronomist from Shandong Province, is currently working in the Entomology Unit for a period of nine months. Mr Hua is interested in quarantine and pest and disease forecasting.

TASMANIA

Queen Victoria Museum, Launceston

Entomology has very much taken a subordinate role behind earthworms for this reporting quarter, and is set to continue that way for a while. Tim Kingston has appointed a full time T.O. on National Estate funding for 12 months to survey native earthworms throughout Tasmania. Tasmania may not look very big on the map but it is certainly big on earthworm habitat and species diversity. How many entomologists, insect ones at any rate, have found more than thirty out of the first forty species checked for an area to be undescribed? How is it possible that a group so vital to soil formation and nutrient cycling, particularly in wet forests, can have been neglected for so long? (Answers on the back of an envelope addressed to Tim Kingston, no correspondence entered into.)

Having had no takers following our offer of aquatic insect larvae from Tasmania's northeast coastal wetlands (*Myrmecia* 27(4), November 1991), we have now obtained a grant from the Plomley Foundation to employ a person for three months to sort the material to Family and

morphospecies so that we can start to look at distribution in relation to water chemistry.

Two particularly interesting species that have come our way recently are the damselfly *Hemiphlebia mirabilis*, several specimens of which were collected in a National Park in northern Tasmania by enthusiastic naturalist Glen Hoye of Singleton, NSW. This species, classed as endangered in Victoria, was not previously known from Tasmania. The other was a specimen of *Hoplogonus simsoni*, an impressive lucanid that, as far as we can determine, has not been collected this century. Some remains were found by Bob Mesibov a couple of years ago which helped to keep it off the extinct list. Our specimen was found staggering in a distressed condition across a recently logged coup by Forestry Commission worker Mr G. Stewart and sent in because "it looked pretty unusual".

Tasmanian Museum

Roger Buttermore was appointed to replace Alison Green on a temporary basis for three months from April and is now very happy if he finds a pay cheque in his tray each fortnight. Roger has a Science Degree from the University of California and a Masters in Agriculture from Auburn University, Alabama. His training has been somewhat under-utilised in recent years in his position as Head Attendant at the Museum, but his patience will have payed off if his position is finally confirmed. Congratulations on your appointment, Roger, and best wishes from Tasmanian members for the task ahead.

Forestry Commission, Hobart

Humphrey Elliot went to China for the International Congress of Entomology. Anna Leon has been in Europe for a three month honeymoon, now Mrs Greener. She returns at the end of July to recommence control work on chrysomelids. Peter McQuillan commences a one year project comparing the oecophorids, lucanids, carabids and geometrids of cool temperate rainforests in S.E. Australia as indicator species of biodiversity. External funding was obtained by the Commission for this project.

Progress has been made for the Commission insect collection to become part of the State Invertebrate Collection following a Curators Meeting held in June. Dick Bashford has commenced survey work to provide a check list of the insects attacking *Eucalyptus nitens* in Tasmania. *E. nitens* is being planted almost exclusively in an expanded plantation programme by both the Commission and industry.

University of Tasmania

Peter McQuillan has left the Tasmanian Department of Primary Industry to take up a lectureship in the Department of Geography and Environmental Studies.

Robert Mensah, having spent 12 months on a post-doc in the CRC for Hardwood Forestry in the Resource Protection program has landed a job with NSW Agriculture at the Agricultural Research Station at Narrabri.

John Madden attended the International Congress of Entomology in Beijing, China.

Tim KINGSTON
Regional Councillor

OVERSEAS NEWS

PAPUA NEW GUINEA

Two biological control projects involving cooperation between the GTZ (German Technical Aid Agency), SPC (South Pacific Commission) and DAL (Department of Agriculture and Livestock) got underway with the arrival on 2nd May of two German Research Assistants, Messers Amut Saucke and Jan Breithaupt. Amut commenced in-depth studies on the brassica pests, especially the diamond-backed moth, *Plutella xylostella*, with bases at Aiyura and Laloki. Jan settled down to work on corn pests in PNG with field studies at Bubia, ERAP and Aiyura Agriculture Research Station. Dr Jurgen Schaeffer, the Team Leader of the GTZ Regional Biological Control visited PNG on May 18 to assess the material and staffing needs of the two projects. The MOU of the cooperation between DAL, GTZ and SPC was finalised at a meeting chaired by the Director of DAL Agricultural Research, Mr E.C. Sitapai and attended, among others, by the DAL Principal Entomologists, Fred Dori, Ray Kumar and Dr Schaefer.

Pascal Pandau completed the monthly locust survey to keep track of locust buildup.

Ray attended the 3rd Biennial Conference of Papua New Guinean Society of Animal Production from 16-18 June, 1992 where he presented a paper, chaired a session, headed a working group and visited Jan and An Sang-Hyun, the Korean volunteer, to review the progress of the corn borer project.

Fred Dori returned to Laloki after attending the 19th International Congress of Entomology held in Beijing from June 28 to July 4

Ray KUMAR
PNG Correspondent

NEW ZEALAND

The Annual Conference of the Entomological Society of New Zealand was held recently at Upper Hutt, adjacent to Wallaceville Animal Research Centre. As usual, there was a high standard of presentation and despite the turmoil resulting from the formation of Crown Research Institutes, there was a higher than usual number of registrations.

The Society has a very strong Education sub-committee and one symposium was entitled "Arthropods as teaching material". This proved very

popular and topics included: The use of Arthropods in the classroom; Conservation week in New Zealand - a permanent outcome for N Entomology; Live insects as effective museum exhibits; Arthropods in schools; Flytrack - the development of an idea (Schools throughout N took part in a fly trapping programme); Biological control of weeds - an education kitset. Heather Janetzki from the Queensland Museum also contributed to the programme with an interesting presentation on the work she and her colleague, Dr Geoff Monteith, are doing in the field of education, not only for students, but teachers as well. This talk complemented one by Pamela Lovis of the National Museum in Wellington. Pamela had recently spent some time working at the Queensland Museum.

Other symposia at the 3 day conference included:Insect Conservation - Effects of intervention; "Fringe" arthropods; Social and harmful insects.

Of particular interest at the conference was a live female specimen of *Deinacrida fallai* the giant (100mm+) weta from Poor Knights Island. Also on display, (but in a separate cage) was the as yet unnamed Mahoenui weta, recently discovered near the township that bears the same name. This weta is also quite large and interesting is thriving on a habitat of gorse. Its natural habitat has yet to be determined.

John TENQUIST
New Zealand Correspondent.

NEWS FROM AFFILIATED SOCIETIES

Entomological Society of Queensland

The main business of the General Meeting held on May 11 was a discussion on the 'Current status of the pesticide debate'. Led by Bill Silvey (QDPI, Standards and Quarantine), Gerard Neville (Queensland Health) and Denis Hamilton (QDPI, Agricultural Chemistry) discussion centred around the media and public responses to cases of childhood leukemia in Emerald during the early 1980's.

A 'Notes and Exhibits' meeting was held on June 9. Neil Gough gave a talk entitled 'Studies on the biology of the orchid beetle *Stethopachys formosa* Baly'. Robert Raven gave some details about the XII International Congress of Arachnology held in Brisbane and Annise Lloyd showed a fruit fly training video. Judy King spoke on 'Termites by the sea' and Ian Williamson presented 'A note on the predation of *Bufo marinus* juveniles by the ant *Iridomyrmex purpureus*'.

The Society is calling for entries for its student award. Any thesis or report undertaken by an Honours, Diploma or final year undergraduate student on an entomologically related topic, examined in a Queensland tertiary institution during 1991 or 1992 is eligible. An entry form has been published in the Society's News Bulletin 20(4) and additional forms are available from all Queensland tertiary institutions.

Christine NEALE
Representative Councillor

Entomological Society of Victoria

The Society held its Annual General Meeting on 19 June at which Ross Field gave his Presidential Address entitled "Biology and Taxonomy of the *Ogyris idmo* complex in Western Australia". Ross showed photographs of eggs and larvae of two species of *Ogyris* in the complex which gave some insight into the biology of the butterflies.

The office bearers elected at the AGM for 1992/93 were:

President	Ross Field
Vice Presidents	Peter Cawardine
	Berry Vardy
Hon. Secretary	vacant (Ken Walker acting)
Hon. Treasurer	Ian Endersby
Hon. Editors	Mali Malipatil
	Kelvin Dunn
Excursion Secretary	Peter Cawardine
Public Officer	Ian Endersby
Past President	Mark Hunting
Councillors	Mark Hunting
	Tim New and
	Danny Dobrosak

(seconded to Council at July Council meeting).

Ross FIELD
Representative Councillor

Entomological Society of New South Wales

The May meeting was held at the Ku-ring-gai Wildflower Garden, a local Council centre specialising in urban bushland education (see photo on following page). Jonathan Howard, Ku-ring-gai Municipal Council's Interpretive Officer, spoke on "Seeing things hairy, lumpy, slimy and ugly" and followed this by a torchlight inspection of the frog pond and possums in trees.

Diane Campbell, manager of the Threatened Species Unit, NSW National Parks and Wildlife Service, addressed the June meeting on the current NSW legislation regarding threatened and endangered fauna. Although no invertebrates have been considered to date, this may change in the near future. The Endangered Fauna (Interim Protection) Act 1991 prevents the destruction or modification of the environment of endangered species, and requires documentary evidence that these species are not affected by such development. Many species are considered to be endangered in NSW including 58% of our native mammals (including entomologists). The talk was followed by a rather lively discussion.

"Investigation into the Natural History of Lyme Disease in Australia" was the topic of the talk given by Steve Doggett in July. Much work is still to be done on this tick-borne disease, especially in Australia, but many of the audience are now convinced that they are suffering from it.

Graham BROWN
Representative Councillor

1992 Listing of Postgraduate Projects in Entomology - Supplement

An Australian Survey Continued

Again I want to thank everyone who has contributed to what must be the most complete postgraduate topic list for some time. We have received replies from all but one institution (which could form the basis of a guessing competition!).

The total number of entomological projects being undertaken throughout Australia in 1992, as listed here, together with those in the May issue of *Myrmecia* is 270.

I gratefully acknowledge the assistance of Julie-Ann Short (CERIT) in compiling the list and keeping track of the large correspondence.

Members of Council of the Entomological Society of New South Wales at the entrance to the Kuring-gai Wildflower Garden prior to the May meeting - L to R: Ted Taylor (Treasurer), Alan Westcott (Circular Editor), Alison Nicholls (Secretary), Christine Stone (Councillor), Graham Brown (President), Angie Condello (Councillor), Mary Ann Terras (Business Manager). [Photo: Murray Fletcher (Vice President)]

NORTHERN TERRITORY

Northern Territory University
(Assoc. Prof. C.J. Webb)

DELARE, I. Isolation and characterisation of ant secretions and their possible significance in pollination. (Hons.)
FOTI, F. The possible nutritional/medicinal value of some termite mounds used by Aboriginal communities of the Northern Territory. (M.Sc.)
LEYLAND, J. Biology, ecology and control methods of ***Thrips palmi***, a pest of vegetables in the Northern Territory. (M.Sc.)

VICTORIA

La Trobe University
(Prof. T. New)

Department of Zoology

KOBELT, A.J. Population dynamics of native budworm in field peas. (M.Sc.)
SILBERBAUER, L.X. Population biology and sociality of ***Exoneura*** in relation to fire regimes. (Ph.D.)

Department of Genetics and Human Variation

BLOWS, M. ***Drosophila*** ecogenetics (Ph.D.)
CLANCY, D. Ecological genetics of ***Drosophila*** and symbionts (M.Sc.)
WATSON, M. Evolution of plasticity in ***Drosophila***. (M.Sc.)
WOODS, R. Using ***Drosophila*** to model coadaptation issues in conservation genetics. (M.Sc.)

NEW SOUTH WALES

University of New England
(Prof. R.L. Kitching)

CLARKE, C. Insect communities associated with pitcher plants in Brunei (Ph.D.)
SUTRISNO, S. Collembola from rainforest canopies in Australia (M.Res.Sci.)

QUEENSLAND

Griffith University
(Prof. R.L. Kitching)

FLOATER, G. Xylophagous Coleoptera from Australian rainforest canopies with special reference to the Cerambycidae (Ph.D.)
BROWN, D. Variation in Psocoptera species assemblages with latitude and forest type in north-eastern Australia (B.Sc. Hons)

Jenny ANDERSON
CERIT
University of NSW.

COMING EVENTS

CONFERENCE REMINDER

The 24th AGM and Scientific Conference of the Australian Entomological Society will be held in Cairns from 3 - 8 July 1993. Full details will be available in the registration brochure which will accompany the next issue of Myrmecia.

Also Remember:

"Southern Temperate Ecosystems: Origin and Diversification".

Hobart 18-22 January 1993.
Contact: Dr R.S. Hill, Department of Plant Science, University of Tasmania, GPO Box 252C, Hobart, Tasmania 7001, Australia. (Fax: 002-202698)
Details: Myrmecia 28(2): 49

6th International Working Conference on Stored Product Protection.

Canberra 17-23 April 1994
Contact: Dr B.R. Champ, c/- ACIAAR, GPO Box 1571, Canberra, ACT 2601.
Details: Myrmecia 28(1): 35

TOWARDS BIODIVERSITY AND CONSERVATION
12-16 July 1993

A CONFERENCE ON THE
BIODIVERSITY AND CONSERVATION OF INVERTEBRATES

Venue: Queensland Museum

Organisers: Peter Davie, Glen Ingram and Robert Raven, Qld Museum

Nearly all animals are invertebrates. They are astonishingly diverse and have an amazing array of shapes and forms. The debate about animal diversity, however, has centred on vertebrates. When decisions have been made about conservation, it is to vertebrates that most managers have turned. This has been misleading. Invertebrates are animal biodiversity. Despite their importance, however, little is known of their ecology and many species are unnamed. The proposed conference aims to refocus the debate about biodiversity by addressing the problems of conserving invertebrates and their habitats and assessing their diversity and systematics. It aims to realign conventional wisdom about conserving the animal world.

Papers are welcomed on all aspects of the conservation and biodiversity of invertebrates, including protists. Refereed papers will be published in the *Memoirs of the Queensland Museum*. We look forward to your participation.

Sponsors include the Queensland Museum and the Threatened Species Network (Queensland).

If you are interested in participating in this conference, either by contributing a paper or poster or by attending, please contact:

Dr Glen Ingram
Queensland Museum
PO Box 300
South Brisbane
Queensland 4101, Australia

PLEASE NOTE: EXPRESSIONS OF INTEREST ARE NEEDED EARLY IN SEPTEMBER - SO CONTACT DR INGRAM NOW.

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Applications are due 1 **February 1993**, with notification of applicant's status mailed 8 March 1993.

Summer Session: 22 May 1993 - 1 August 1993

Application form and project descriptions may be obtained by writing to the Program Coordinator:

Mary Sangrey
Program Coordinator
NHB 166
Smithsonian Institution
Washington DC 20560
U.S.A.

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NEW PUBLICATIONS

"Conservation of Australia's Forest Fauna" Edited by Daniel Lunney. 418pp. Soft Cover $64. Published by Royal Zoological Society of NSW. Available from Surrey-Beatty and Sons, 64 Rickard St, Chipping Norton, NSW 2170

This significant publication includes 34 Chapters on a very wide range of topics covering the zoology, conservation and management policy of Australian forests. Although most emphasis is placed on the vertebrate inhabitants and their ecology, invertebrates are treated in several chapters and are the principal subject of Chapter 16 by A. Postle, J. Majer and D. Bell on selected invertebrate species on the northern jarrah forest of Western Australia.

BOOK REVIEW

"Butterflies of the Bulolo - Wau Valley" by Michael Parsons.

Small glossy cover field guide. 280 pp with 23 colour and 3 black and white plates and numerous line drawings. Rec. ret. $US 34.95 + $US 2.00 post & handling to Bishop Museum Press, P.O. Box 19000-A, Honululu, Hawai'i 96817.

This field guide represents an important step in the definition of the butterfly fauna in New Guinea. Butterflies have long remained one of the most popular and well studied groups of insects world wide. New Guinea's well developed forests, in a variety of habitats, provides a platform for a wide diversity of plant and animal species and in particular butterflies. Many of New Guinea's 550+ species of butterfly are among the most spectacular insects on earth and are eagerly sought by collectors world wide. Lack of access to, and the desirability of, these species has engendered a distinctive market for this fauna, with rarer or protected species often fetching high prices on black markets.

Wau Ecology Institute was set up by the Bernice P. Bishop Museum in Honululu in 1961 to allow scientific research into rainforest ecology particularly in the Bulolo - Wau valley of the Morobe province. The Bulolo - Wau valley with an area of about 350 km² has a butterfly fauna that represents over two thirds of the species found on the entire mainland of New Guinea. Michael Parsons, of the Wau Ecology Institute, has summarised the known information on the 373 butterfly species of the valley into a single concise volume. He has nearly twenty years experience including three year's intensive collecting and has undertaken extensive study of the ANIC, BMNH, B.P. Bishop and other museums' butterfly collections to ensure the comprehensiveness of his data.

Introductory chapters cover the origin of P.N.G. butterfly fauna and butterfly ecology. More extensive chapters cover the economic importance of P.N.G. butterflies and butterfly conservation in the country. Brief chapters cover collecting and study hints, classification and distinguishing moths from butterflies. The remaining bulk of the handbook catalogues the known butterfly fauna of the valley. The format is brief but informative covering the specific name and plate reference, status, altitude range, wing size, similar species, habitat and habits for each species. Where possible additional field and/or taxonomic notes and foodplants are included. Each species is illustrated and where very similar species exist line drawings of genitalia or other distinguishing features are also presented for easy reference.

A glossary is provided as well as chapters on foodplants lists, a bibliography, a checklist of species including plate references and a plate index. Most plates are in full colour and are of a high standard. The compactness of this volume has meant that the colour illustrations are relatively small and a further criticism is that all specimens are pictured at the same size thus distorting the relative sizes of the different species. This is initially disconcerting but the wing size is given in the text and an advantage is that smaller, less easily identified, species are reproduced larger than life making identification easier. Both uppersides and undersides are illustrated for some species.

There have been noticeably few recent works covering the P.N.G. butterfly fauna as a whole, although some family and generic revision has been published. This guide summarises those taxonomic changes and with the addition of important ecological data in an easy to read format will undoubtedly become a major reference work for anyone researching PNG butterflies.

Michael Parsons in conjunction with others at Wau Ecology Institute have studied the biota and provided both ecological data and impetus for the formulation of government policies concerning insect and indeed rainforest conservation and management. Certainly initiatives like the Insect Farming and Trading Agency and other policies that affect or regulate the illegal flow of butterfly fauna out of P.N.G. have had input from Mr. Parsons and his colleagues. As well as being a cheap easy to read reference guide, this book will hopefully stimulate concepts of promotion of butterflies as a cash crop, an awareness of the biology of butterflies and an awareness of the value of rainforests and their conservation, particularly for the indigenous people. I believe that it is in this respect that this book makes its most important contribution and will serve the international "collector" and the local "grower" alike.

Peter GILLESPIE
NSW Agriculture
Rydalmere NSW

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